



PROFESSION

OS/2 FOR CORPORATE AMERICA

APRIL 1994, VOLUME II, NUMBER 4

**The Unfulfilled
Promise of 32-bit
Applications**

Whither Taligent?

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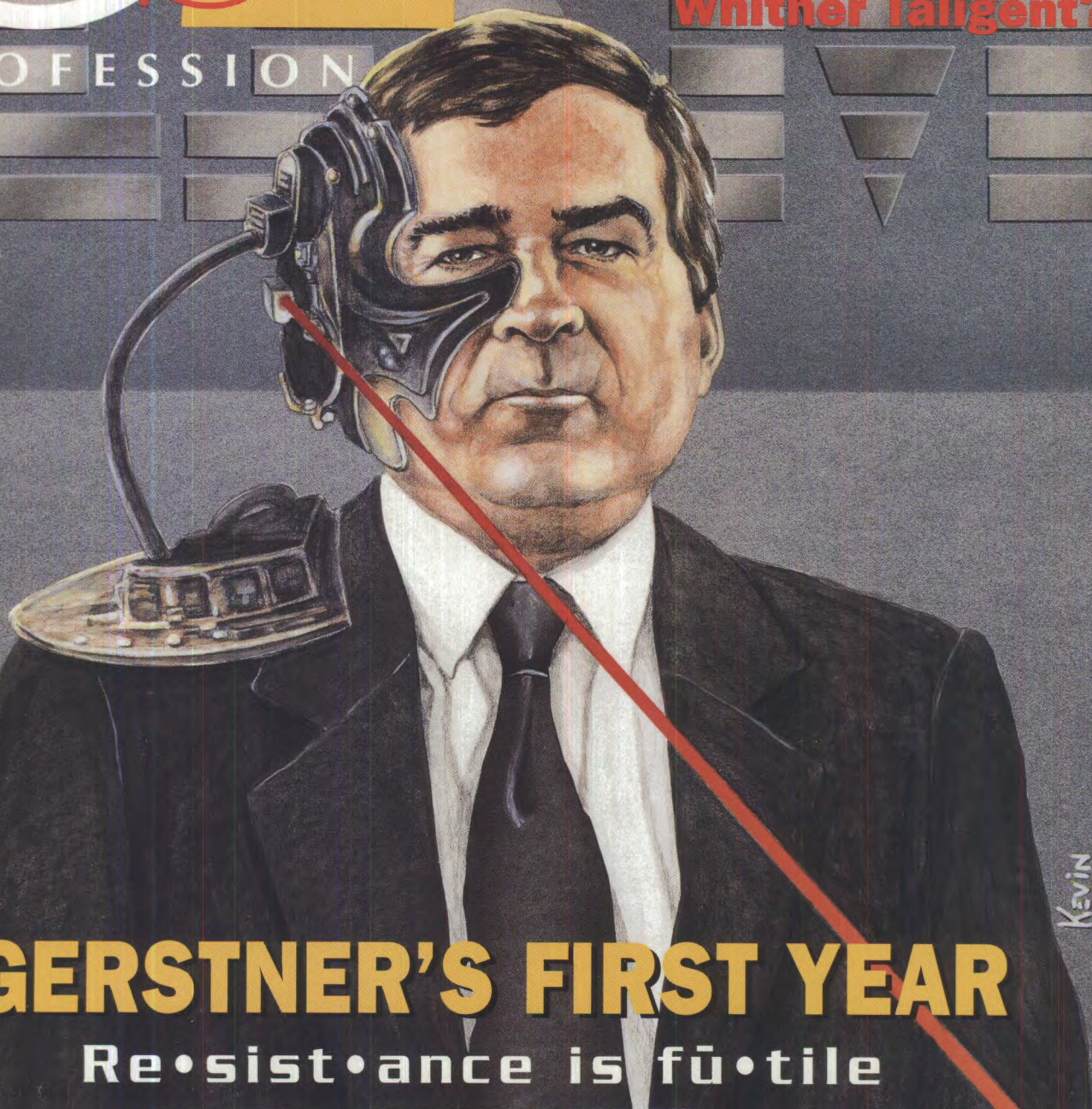
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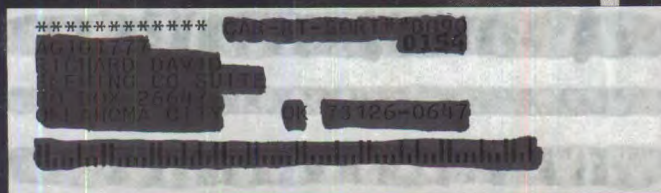
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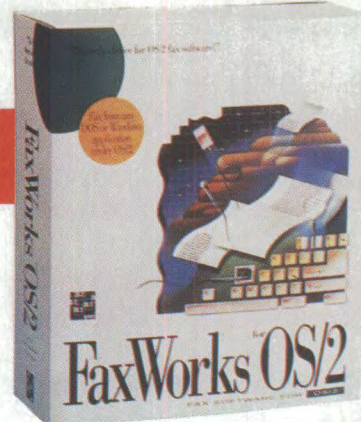
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ARTICLES

24 Q & A **The Objects of His Affection**

Within a short time, you will be using Taligent technology. Joe Guglielmi, the company's president, explains why.

BY BRADLEY D. KLIEWER

28 FEATURE **The Gerstner Era**

Louis Gerstner has now been on the job for one year. What has he accomplished? Only one thing: IBM is still alive.

BY EDWIN BLACK

34 SPECIAL REPORT **The Unfulfilled Promise of 32-bit Software**

Weren't the new applications supposed to be leaner and faster? What happened?

BY HERB TYSON

PRODUCTS & REVIEWS

41 EYE ON THE MARKET **Workplace NT: April Fool or Food for Thought?**

Maybe the best path for IBM is not to fight the Windows juggernaut, but instead to join it.

BY MICHAEL S. KOGAN

45 HANDS ON **The Backup Dilemma**

Your hard drive will fail; are you prepared? If not, a cost-effective, low capacity backup system should be at the top of your list.

BY CRAIG S. STEVENSON

51 DOT EXE **Taking Charge**

CA's new OS/2 tool will help you manage your projects, rather than the other way around.

BY HERB TYSON

55 CONNECTIVITY **Concerned Over Crypto Connectivity Crunch**

Do you want the government to have the key to decode your secure communications?

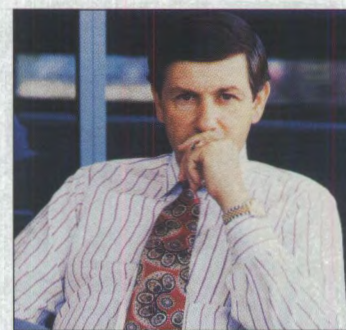
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PAGE 28



PAGE 34



PAGE 24

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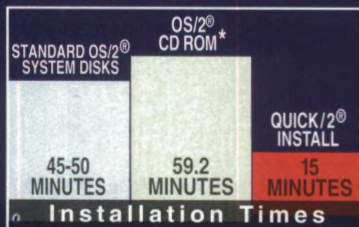
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Circle #113

APRIL 1994

THE MAGAZINE FOR OS/2 PROFESSIONALS

Table of Contents—Continued

- 59** MARKETLINE
Globalink bundles its Power Translator with Recognita's OCR software, Computer Connections America's DAT shuttles, and version 2.3 of Bon Ami's CPU Monitor Plus.

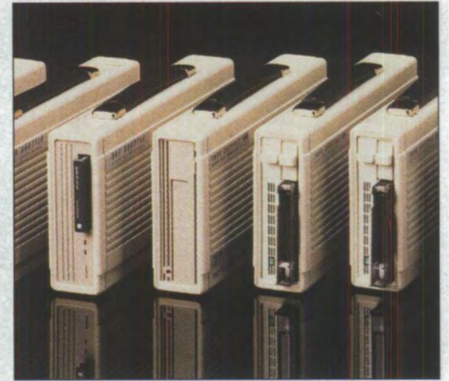
TECH TALK

- 63** CODE CACHE
OS/2 Inter-Process Communication: Queues
It's easy to build robust multithreaded apps. How? Simply master the details of OS/2's rich set of IPC mechanisms.
BY CAREY GREGORY

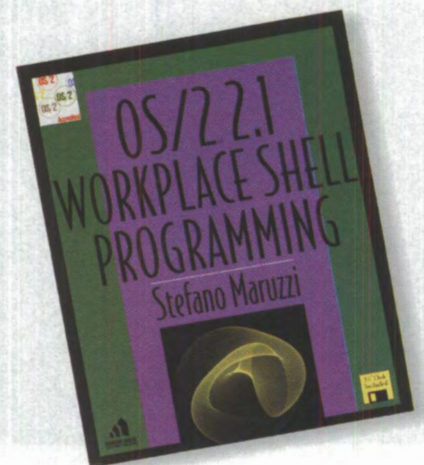
- 69** THE I S NOTEBOOK
Master of the Game
If someone were to play computer games at work—not in your shop, of course!—here are some optimizing tips.
BY GORDON SCOTT AND GENE STEELE

DEPARTMENTS & COLUMNS

- 15** INPUT
Congratulations, criticisms, and observations from our readers.
- 19** BYTES & PIECES
IBM's half-billion-dollar investment in WOS, problems with Windows 3.11, and One Up's SMART tool.
- 21** ZACHMANN'S VIEW
In just one year's time, OS/2's fortunes have boomed.
- 73** BOOKSTAX
Dana Blankenhorn and Tommy Bass review *The PC Internet Tour Guide*, by Michael Fraase, and James T. Norman reviews *OS/2 2.1 Workplace Shell Programming*, by Stefano Maruzzi.
- 79** DATA DATES
Networld+Interop '94 in Las Vegas, Comdex Spring/Windows World '94 in Atlanta, and DB/Expo in San Francisco.
- 80** THE VIEW FROM CHAOS MANOR
How are you supposed to use on-line documentation if you can't read it?



PAGE 59



PAGE 73



Imagine what it will

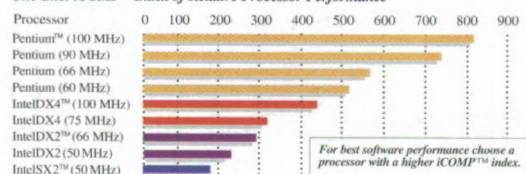


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FOR THE DESKTOP

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Snooping Safeguards

I'm going to editorialize in favor of something rather unpopular right now. I'm supporting the Justice's Department's proposal for standards that will allow it to tap in and monitor the new breed of encryption technology now emerging.

What! Computer professionals of all stripes have been rising up furious and waving the Bill of Digital Rights in opposition to the FBI being able to intercept data on the coming Information Superhighway, and I am backing the FBI!

Wait. Before you call out the Yellow Submarines, a few credentials: I am as staunch a defender against government intrusion as anyone. I spent the first half of my career as an investigative reporter crusading against wiretaps, surveillance, dirty tricks, and corporate fascists. In the late '60s, I got my head bashed while covering the Democratic Convention in Chicago. In the '70s, I went through the trash bins of Military Intelligence in Chicago to expose spying against civilians. I've uncovered enough government and corporate conspiracies to make the *Pelican Brief* (by the way, a really lousy movie) seem like a petting zoo.

But in the '80s and '90s, I began covering hate groups, financial criminals, and international terrorists. They all had one thing in common: they used computers, voice mail, phone forwarding, and other forms of technology to perpetrate their crimes and elude capture. These are the people who want to defraud your company and hurt you and your employees, and increasingly they are becoming chip savvy.

Now let's look at what the FBI has right now in its arsenal. It can hire a burglar to break into your home or even your favorite restaurant and plant listening devices. That's how they nailed Mafia chieftain John Gotti. They can tap your e-mail and phones. That's how they nailed the World Trade Center bombers. They can install monitors in your computers. That's how they caught alleged CIA turncoat Aldrich Ames. They can even execute a "mail cover" which will allow the Justice Department to divert your mail, copy it, carefully reseal it, and then put it back in the mail stream.

All that is nothing compared to what the FBI is entitled to do

under a little known statute called FISA, the Foreign Intelligence Security Act.

But all that takes a court order, and so should any updated capabilities on the Information Superhighway. Yes, there was a time before Watergate when "national security" was a code word for persecution of dissenters. And yes, there was extraordinary abuse. I spent years exercising the Freedom of Information Act to discover the spying the intelligence community had done on me after I started investigating the intelligence community.

But thanks to a lot of hard-hitting no-nonsense journalists and the built-in safeguards of our nation—which narrowly endure—the risk of abuse is dramatically less than what it was. Indeed, the

question facing the computer community should not be whether government has the right to defend its citizens from criminals who will exploit the technologic revolution. It has that right. The question is can government be *controlled* to make sure it is not abusing its rights. Now that Spiro Agnew is out of office, we have a decent shot.

It's funny. Now that the CIA is shown to have a mole and the World Trade Center suffered a bombing, people are demanding to know where was law enforcement, counter-espionage, and counter-terrorism. What do you expect

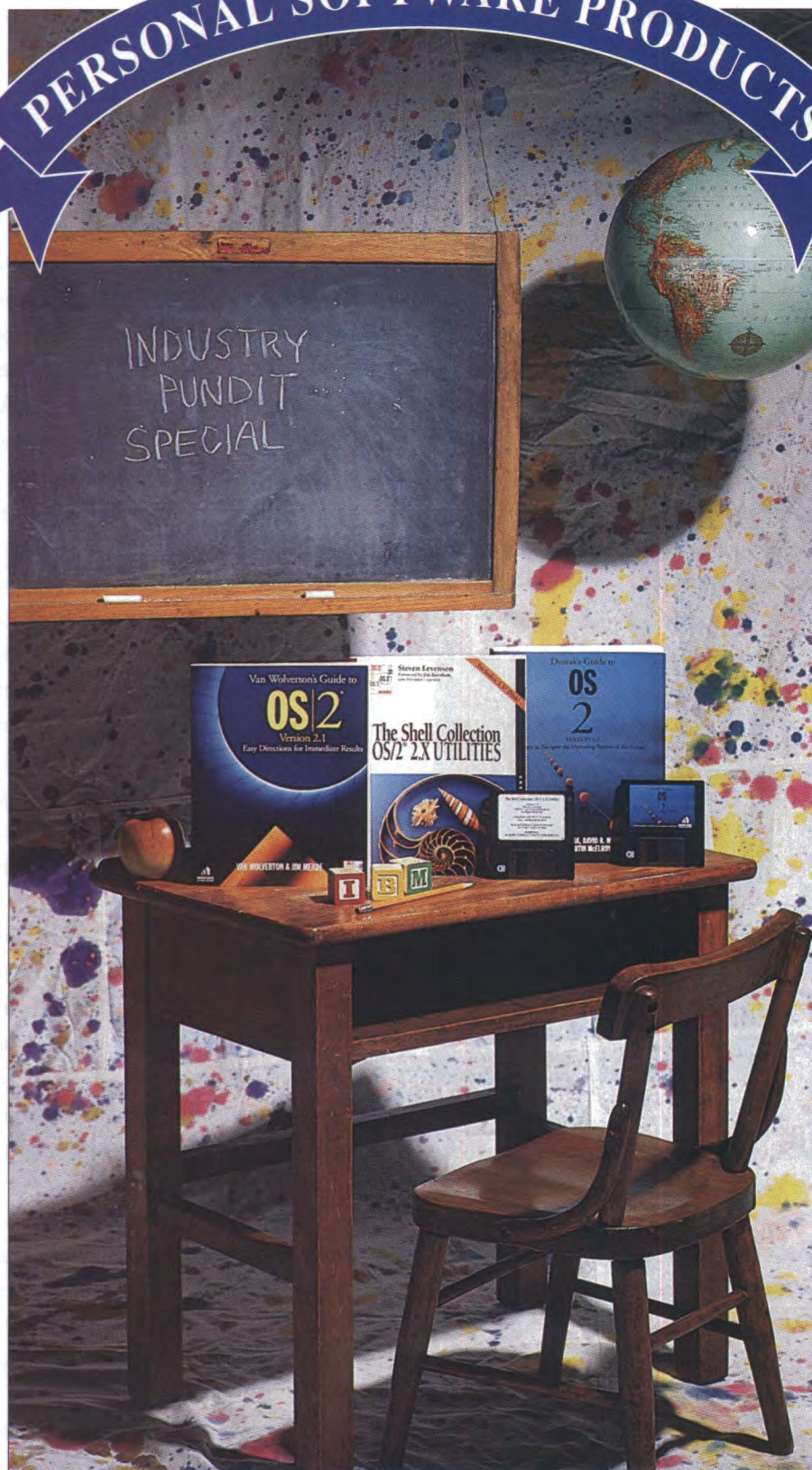
the FBI to do: send an e-mail notice out to all suspects to turn in their floppies?

And what do you think the Russians and Chinese are doing? They routinely monitor every satellite-borne telephone conversation in the country, and if they want to badly enough can spend the time to isolate a single voice who may speak a certain word or phrase or even with an inflection. Is our government to be less capable than the bad guys across the sea?

So demand safeguards, remain vigilant, crack down on abuse, continue to keep the court approval process rigid, prosecute abusers. But do not disarm society as it confronts a new informational age in which not all the fields are on the level—and neither are all the players. ♦

Edwin Black

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Comments, criticisms, and observations

Don't ask the IS guy

I must take issue with one of Jerry Pournelle's comments [The View From Chaos Manor, February]. Jerry noted something to the effect that it would be much nicer running OS/2 in a large corporation because you could always turn to the IS staff to get an answer to your question. I work in one of those large corporations, and Jerry, at least in our case, no, this is not true. The average readers of *OS/2 Professional*, Byte, and your fiction are more knowledgeable about PCs, PC software, and OS/2 than the IS staff at our company. What knowledge our staff does have sounds like it was poured straight from Bill Gates' mouth. In self-defense, we formed a peer-level broadcast e-mail ID for OS/2 users to ask each other questions. This e-mail address, along with UseNet (comp.os.os2) newsgroups, the Internet OS/2 archive sites, the IBM OS/2 BBS, and the OS/2-specific BBSs are our most valuable sources of information. We get nothing from the corporate IS staff.

Robert Gammon

Via the Internet

Where to next?

I thoroughly enjoyed the series of articles on "The Future of OS/2" [Special Report, January]. They were informative, well balanced, and provided excellent insights into the future challenges facing IBM. I was particularly impressed with Michael Kogan's article, "The Battle for Market Share."

To be successful, an operating system must have backwards compatibility, and in this case the ability to run Win 3.1. As he pointed out, it may also be the Achilles heel of OS/2. It is easier and more cost-effective to produce a Windows version that will run well under OS/2, even though it won't take full advantage of the operating system, than to undertake a very expensive development program for native OS/2 apps. If IBM chooses to install WIN32c compatibility in the next ver-

sion of OS/2, the problem will continue. What should they do?

Mr. Kogan also discussed the need for OS/2 to be preloaded on PCs as the default system, which I think is equally or more important than the compatibility issue. Much of Win 3.1's success was a result of being installed as the default operating system.

In his conclusion, Mr. Kogan once again skillfully outlined the challenges facing IBM in 1994, but he left out his personal opinion. That may be very professional of him, but I would like to know if he thinks IBM will meet the challenges he outlined.

Robert Tishkevich

Columbia, Maryland

[Mike Kogan replies: Thanks for the kind words. In answer to your first question, IBM will not put WIN32c in its next release of OS/2. The next release will support WIN32s and possibly some level of VxD compatibility.]

IBM must make a decision as to what "success" means for OS/2, and define and execute a strategy and marketing plan that can achieve it. If success to IBM means winning a majority consumer share, OS/2 must go toe-to-toe with Chicago without WIN32c compatibility. Since porting between WIN32c and OS/2 is far simpler than moving from WIN16 to either 32-bit API, and the shelves will not have more WIN32c programs than WIN16 programs for at least two years, IBM should embrace a strategy that supports conversion of native WIN32c to native OS/2 code.

While I think IBM will continue to improve, I am skeptical whether it will fully meet the challenges of the marketplace. I fear IBM will continue to put too much emphasis on symbolism and plans rather than on the substance, grit, character, and risk-taking required to win the OS wars.]

Professional Input

Let's have Input from professionals! The magazine is named *OS/2 Professional*, the top cover states "OS/2 for Corporate America," but the Letters

to the Editor sure sound like crybabies. Every month you print one or more letters from someone who wants IBM to give him a free update or free copy of OS/2 2.1. Or letters from someone who can't install OS/2.

We used 2.0 and updated to 2.1 for \$69 and then received a \$30 rebate (Comdex Spring '93). Is that too expensive for corporate America? Shouldn't a professional be aware of software upgrade offers? More importantly, shouldn't a professional be capable of installing new operating systems without petty complaints?

I too have my concerns about IBM and the future of OS/2. We need competitive systems. Should any single company be the single source? We will all be losers. Perhaps Jerry Pournelle should be directing IBM's OS/2 future development [The View From Chaos Manor, January].

Walt Short

Raleigh, North Carolina

Where are the preloads?

When OS/2 2.1 was first released I considered upgrading. However, I was disappointed by the upgrade price and since I had only been an OS/2 user for a short time, I was not convinced of the system's capabilities.

As time passed I decided that perhaps OS/2 2.1 would meet my needs. Since I also was contemplating upgrading my 486/33 ISA bus computer, I decided I could resolve both issues by purchasing a new system that came with OS/2 2.1 and device-driver support for the various peripherals.

I made this decision approximately two months ago and have been very disappointed in the lack of choices available to me. The most surprising is that both IBM Direct and Ambra advertise a DOS 6.0/Windows 3.1 option and do not mention OS/2 at all. Is the IBM advertising department trying to discourage the purchase of their own operating system?

Richard Reece

Okinawa, Japan

INPUT

[Editor's Note: IBM does offer to pre-install OS/2 on both its PS/2 and Valuepoint lines. Ambra Computer Corp. has said since last year that it will offer to preload OS/2 on demand, but it does not yet do so. The company has told OS/2 Professional that it is at work developing the option and will offer OS/2 to its customers late this year. More than 80 OEMs also bundle or distribute OS/2 worldwide, among them Dell computer, Compaq Computer Corp., and Olivetti & Co.]

Just the fax

I am writing in response to letters from your readers who are unhappy with SofNet's FaxWorks software carrying an advertisement on its default cover sheet [Input, October/ December].

Versions 1.37 and 1.38 of FaxWorks for OS/2 had code that embedded the comment "Sent via FaxWorks for OS/2" on each cover sheet. This was

removed with the current release 1.39i. In addition, the default cover sheet bitmap also had the same tag line in the bitmap. This was removed December 1, 1993 and the manufacturing masters have been updated.

This action was taken after we received the complaint from OS/2 Professional reader Marvin Feuerstein. The reason we carried this message on our cover sheet was one of simple pride. We never expected customers to be our billboards. We are not "arrogant," as one reader stated in your December issue, but we are at fault for underestimating the sensitivity of our customers.

All FaxWorks OS/2 customers who would like to pick up a new cover sheet file can do so by calling our BBS at (404) 984-9926. The file is NEWCOVER.BMP in the OS/2 Conference.

Walter McCourt
FaxWorks
Marietta, Georgia

The MAKEINI mystery

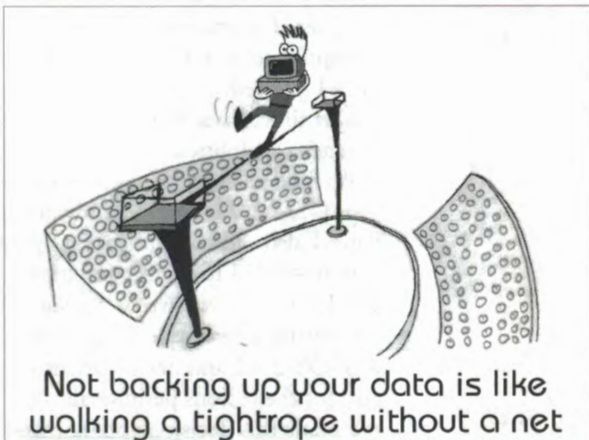
Gordon Scott's column [Tips and Techniques, February] mentions how to configure the OS/2 desktop to look closer to the Windows desktop. He recommends the following statement: **MAKEINI WIN_30.RC OS.INI** to perform the changes and all I can get is **MAKEINI.EXE - Error in INI file**.

I believe I followed all pertinent instructions as per the article. Is something else missing? (This is done with Ferengi on a new installation on a Pentium). Help!

Eric Richner
Via CompuServe

[Brad Kliewer replies: The parameters listed for the MAKEINI command were reversed (note: this is contrary to the convention of source file followed by destination file). The command should read: MAKEINI OS2.INI WIN_30.RC. You

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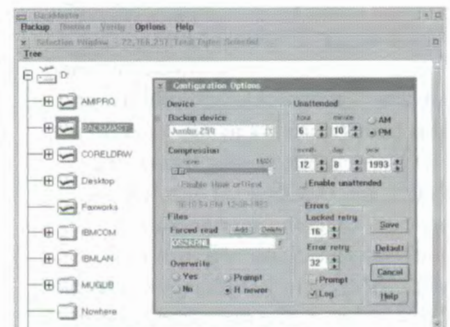
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INPUT

may also need to remove the read attribute from the file. If the command still does not work, try typing: **ATTRIB -R OS.INI** before executing the **MAKEINI** command.]

Right as RAID

I'm writing regarding Bradley Klierer's article, RAID to the Rescue [Special Report, February].

While I was pleased to see a story detailing the benefits of RAID technology, several references to EZRAID for OS/2, our new software implementation, were inaccurate.

First of all, you allude to the fact that hot swap and hot standby "relies on specialized hardware." With EZRAID both hot swap and hot standby are standard features that are elegantly implemented in our software. Our hot standby feature allows a failed disk to be rebuilt with zero downtime and no user intervention whatsoever.

Secondly, you make reference to software RAID solutions like EZRAID as being "low-tech." I'm sure that all of your readers would agree that a software product with more features, superior performance, greater flexibility, and dramatic cost savings over hardware-based RAID systems is definitely not low-tech!

My third point is in regards to your comment that with software RAID products, "systems remain vulnerable until the failed drive is replaced." When a disk fails in a fault-tolerant array such as RAID Level 1 or 5, the system will continue to operate normally. The vulnerability of the remaining disks is the same as in any system that is not using fault-tolerance.

Fourth, "software-based approaches leave your system vulnerable to a crash on the boot drive." While this is true of other RAID implementations, EZRAID for OS/2 is the only RAID product, hardware- or software-based,

that allows you to mirror an existing logical drive (including the boot drive), creating complete fault-tolerance. As such, I'm sure you'll agree that your comment about RAID software being "best-suited for individual workstations and servers on small networks," is highly erroneous.

Many *OS/2 Professional* readers have called to tell us that they've been wanting to add the benefits of RAID but could not justify the inflated prices of hardware-based RAID systems. With EZRAID innovative software implementation, we're confident that RAID will in fact become a technology for the masses.

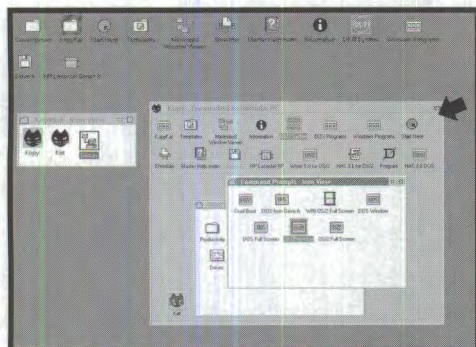
Robert Lendvai
Pro Engineering, Inc.
Ottawa, Ontario, Canada

[Brad Klierer replies: In compiling our article we had to rely on verbal information—continued on page 76]

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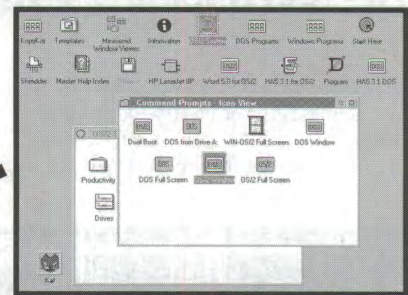
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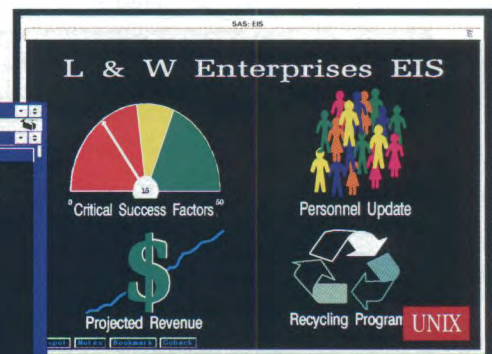
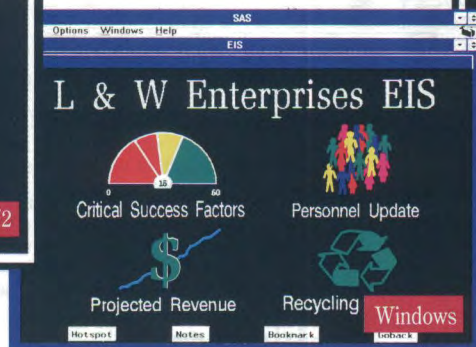
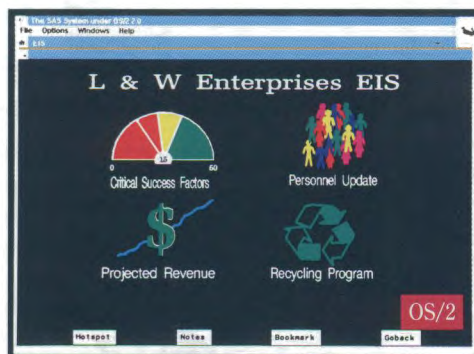
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BYTES & PIECES

News and views from the cutting edge

Big bucks for WOS

In the wake of the confusion over the timing of the Workplace OS beta, details have come to light that indicate just how much time and effort IBM has invested in the new operating system.

IBM sources indicate that the company has already poured some \$500 million into the project. Currently, about 2,000 people are involved in the effort to get the microkernel-based PowerPC operating system up and running.

And a half-billion dollars is only the start. Sources report that the company expects it will spend an additional \$500 million before the operating system is complete and in place on user desktops.

The escalating costs come at a time when IBM CEO Louis Gerstner's cash cops are searching every corner of the company, demanding that every large, expensive project be justified. With analysts complaining that WOS is confusing the marketplace about IBM's OS intentions, the project is reportedly hovering near the top of the endangered projects list.

With such huge amounts of resources invested, those associated with the effort report that the tension level has grown in proportion to expectations. "There is enormous pressure on us involving every nickel we're spending on the project," said one key WOS executive.

"The problem is," she continued, "no one can demonstrate how the company is going to make any money back on the thing. Anyone who asks if Gerstner is thinking about cutting OS/2 in favor of WOS has it backwards. It's WOS that is close to being chopped."

Windows upgrade an OS/2-killer

OS/2 Professional's testing laboratory has confirmed that the recently issued maintenance upgrade to Microsoft Windows, version 3.11, will not execute in the OS/2 for Windows environment. Users who try running OS/2 for Windows with the revision are greeted with an error message: "A program in

this session encountered a problem and cannot continue."

IBM has posted a list of 13 new Windows files that may lead to problems: KRNL386.EXE, GDI.EXE, USER.EXE, WINFILE.EXE, CONTROL.EXE, COMM.DRV, MOUSE.DRV, TIMER.DRV, VGA.DRV, 8514.DRV, WIN-COM, WINOS2.COM, and WIN-DOS.COM. According to IBM Technical support, replacing these files with the older 3.10 versions will resolve the compatibility problems. You may not need to replace all 13 files, however. OS/2 Professional's system worked when only KRNL386.EXE was replaced with the older 3.10 version.

Such problems are not new to the Windows users of DOS add-on memory manager and multitasking software. Historically, manufacturers such as Quarterdeck (maker of QEMM and DESQview) have issued upgrades to fix compatibility problems when new versions of Windows appeared. IBM is now in the same market with OS/2 for Windows.

While operating systems vendors play cat and mouse games keeping their software in synch, we suggest two options. First, if you do not require the dual boot to DOS feature, use the full version of OS/2 (which is not affected by the 3.11 upgrade). Second, if you need OS/2 for Windows, keep your system at the Windows 3.10 level.

A SMART move

The One Up Corporation has released a piece of software that has software developers drooling. Why? Simple: It could turn the tide in the applications marketplace. One Up's Source Migration and Reporting Tool is a code migration tool that automates a large portion of the task of migrating 16-bit code to 32-bit code that will run under OS/2.

This new program enables developers to analyze existing 16-bit Windows or OS/2 code and then generate a "roadmap" detailing exactly what it will take to migrate that code. While SMART will not do the entire conversion, One Up President Richard Dews told OS/2 Professional that up to 70 per-

cent of an application's code will be "automatically converted," and the new code will be accompanied by a detailed report outlining the requirements for completing the task.

While application developers are excited about the new time-saving tool, IBM execs' pulses are racing as well. Big Blue hopes the tool will produce a bumper crop of native 32-bit applications to feed the growing demand. IBM Software Tools and Alliance Manager Jeff Dean expressed confidence that SMART will be a "necessary tool for building IBM's arsenal of applications for Workplace OS/2."

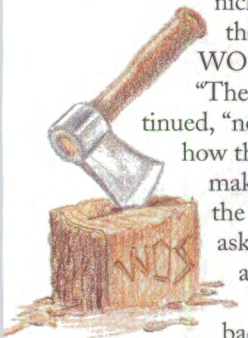
SMART was initially released in late February on CompuServe, and was then distributed to subscribers of IBM's OS/2 Developer Connection CD-ROM.

Chilling news

It all started with a fax during the height of the freeze that wrapped Washington, D.C., and much of the East Coast in sheets of ice. OS/2 Professional Editor-in-Chief Edwin Black, experimenting with Quark for Windows, keyed in the phrase "Hell has just frozen over." On impulse, he then sent the page he'd produced to every number programmed into his fax machine. Little did he know how that phrase would resonate within the OS/2 community.

Within 30 minutes, Black's fax machine began spitting out queries, observations and jibes in response to the message he had sent. Two comments in particular caught his attention. One jubilant recipient pointed out that Bill Gates had promised that he would resume developing for OS/2 "when hell freezes over." As he pondered on that, another anxious respondent noted worriedly that IBM's John Soyring had vowed to halt developing for OS/2 if the same weather conditions prevailed.

If in fact hell ever does freeze over, the consequences could be startling for OS/2. Of course, we may all be a bit distracted at that point.... ♦





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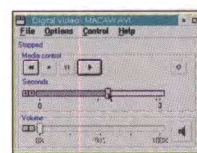
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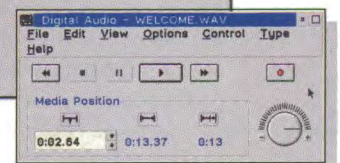
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A New, Better Future for OS/2

BY WILLIAM F. ZACHMANN

What a difference a year can make! Remember April 1993, and the gloom and doom in so many quarters about OS/2? One year ago, even many of OS/2's supporters were nervously awaiting the release not just of OS/2 2.1, but also of Microsoft's Windows NT.

Foes of OS/2, while grudgingly admitting that IBM's desktop operating system wasn't quite dead after all, loudly proclaimed that it was only a matter of time—it would be once NT shipped. And most of the trade press agreed with them. Even some of OS/2's worried supporters were beginning to think NT might in fact deal OS/2 a body blow. There was more than enough hand-wringing to go around.

Today, of course, things look very different. OS/2's installed base is up over four million and growing nicely. Windows NT lags far behind OS/2 in both sales and installed base. OS/2's momentum continues to build while NT fades into the background—to be rescued, one now hears, by yet another code-named product, "Daytona."

Meanwhile, Windows NT has been displaced in the center ring of Microsoft's Windows Everywhere circus by "Chicago," yet another bit of "projectorware" ("runs best on an overhead projector") from Redmond. Chicago supposedly will kill off OS/2, some day, once it gets finished—whenever that may be.

There is more to the sea change over the past year, though, than a more favorable view of OS/2's prospects and more confidence on the part of its supporters. OS/2's better fortunes have been a factor in some significant changes in IBM's future operating system strategy as well.

A year ago, IBM talked about Workplace OS as the future migration point for both OS/2 and AIX. WOS was to be a sort

of "convergence" OS that would support not only OS/2 and AIX, but other legacy platforms as well, by way of "personality modules" built on top of its microkernel foundation on both Intel and RISC systems.

IBM clearly implied that Workplace OS would appear sometime around the middle of 1994, initially with and for IBM's PowerPC systems—in fact, it would be their primary operating system. A version for Intel architecture systems would follow.

Beyond that, Taligent would provide yet another operating system even further into the future. Though elements of Taligent would first appear as layers on top of OS/2 and AIX, it would eventually be released as a separate operating system that would be object-oriented "from the ground up."

As 1994 began, however, IBM presented a newer and significantly different future vision of IBM operating systems for microprocessor-based systems. IBM first hinted at in CEO Lou Gerstner's videotaped reference at Fall Comdex 1993 to AIX and OS/2 as IBM's two key strategic operating systems.

The new version of this vision strongly de-emphasizes Workplace OS. According to what John Soyring told me earlier this year, Workplace OS is now better understood "as the code name

of a project, not of an operating system." It now appears, that when it first ships, the only IBM-developed operating system offered for IBM PowerPC systems will be a version of AIX.

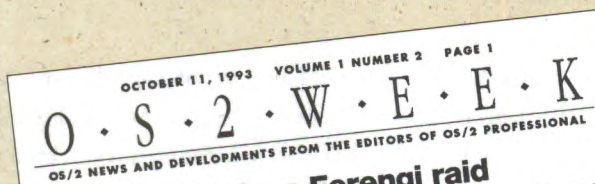
Why the change? Why is Workplace OS suddenly not an operating system but a project? Why the renewed emphasis on OS/2 at the expense of Workplace OS? What has really changed in IBM's strategy and what does it mean for OS/2?

Two primary reasons appear to be responsible for the change,



**THERE IS LITTLE REMAINING REASON TO DOUBT
THAT OS/2 WILL BE A STRATEGIC OPERATING SYSTEM
FROM IBM FOR THE LONG HAUL, NOT JUST FOR A
COMPARATIVELY BRIEF TRANSITIONAL PERIOD.**

On your desk every Monday morning.



IBM plans Ferengi raid

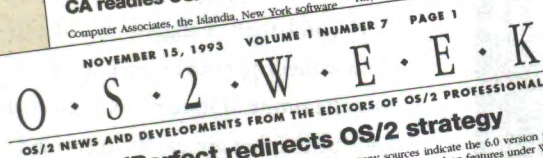
IBM will ratchet up its marketing assault on the OS/2 crowd in a big way with a secret new OS/2 Windows-based Ferengi (for the irascible computer code-named Ferengi) for the irascible commercial raiders seen on Star Trek. The package will not be front-end GUI, but a fully functioning program that will be virtually indistinguishable from the OS/2 that they're using. IBM's reliable sources told OS/2 Week:

The as yet untested product is designed to install easily on top of DOS and Windows as an upgrade to Windows 3.1. It will allow current Windows users to readily adopt the OS/2 operating system without giving up their existing configurations. Ironically, Ferengi still will require between 15 and 17 diskettes. At press time, the number is not final.

IBM has not finalized a price for the product, but at \$49.95 it isn't actively considered. Ferengi is still in beta, but Big Blue is rushing the product to be ready for a Comdex announcement.

The read-ahead bug has already been fixed and is now available. Readily available.

Computer Associates, the Islandia, New York software

[illegible]

Lotus and IBM News

0 . S . 2 . W . E . E . K

DECEMBER 13, 1993 VOLUME 1 NUMBER 10 PAGE 1
O · S · 2 · W · E · E · K
OS/2 NEWS AND DEVELOPMENTS FROM THE EDITORS OF OS/2 PROFESSIONAL
PSP Gets 2

The recently announced deal between IBM and Lotus to market the SmartSuite for OS/2, first predicted in *OS/2 Week*, is more far-reaching than a simple co-op or retail assistance program, even though Lotus has cooperatively. PFS has now essentially taken over the company, appointing its own product manager, over the Gong. Questions about advertising, marketing, box design, and even Lotus and IBM logos are only some being addressed. At press time, there is still no word on whether the SmartSuite will continue to have the same "Lotus look" or have an entirely new IBM-driven OS/2 persona. If the SmartSuite box and its advertising retain the existing look, IBM officials worry their efforts will support the Windows version as well. Hence, a whole new package and campaign is being

IBM is moving closer to commercial production of its peer networking version of OS/2.

the software labs in Boca Raton. Knowledgeable observers report that those improvements will include: reliability with only 4.8 am-

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Circle #132

ZACHMANN'S VIEW

one fairly obvious and the second requiring some conjecture. The first reason is that OS/2 is doing better than expected. Last year the name OS/2 still was considered by many to be a serious liability and many were urging IBM to drop, if not OS/2 itself, at least the name.

IBM and OS/2's supporters have made tremendous progress over the past year in turning around the negative perception of OS/2. A steadily growing user base, more favorable press coverage, a number of industry awards, solid retail sales, and the remarkable success of OS/2 for Windows have combined to breathe new life into the name OS/2.

The second reason for the change is less obvious and requires a bit more conjecture, since it is not one that IBM sources are as eager or as willing to discuss. But it is no less true. The Workplace OS "project" based upon the IBM microkernel isn't ready yet, and probably won't be for some time.

With OS/2 doing much better now and the microkernel-based Workplace OS project not even in beta, IBM's renewed emphasis on and deepened commitment to OS/2 make very good sense. Presently planned for 1994, according to sources at IBM, are improvements to OS/2 that include symmetric multiprocessing support; a probable mid-year "refresh" update to OS/2 2.1 incorporating various bug fixes, more device drivers, and some performance enhancements; and C2-level security and a major update (probably AS OS/2.2.2) late in the year. Microkernel-based products resulting from the Workplace OS project aren't likely to be ready before sometime in 1995, however.

None of this means that the original plan for Workplace OS has been scrapped, however. It merely means that it has been further pushed off into the future and probably will not be called Workplace OS when it does arrive. I'd say there's a pretty good chance, in fact, that it will be called OS/2 3.0 when it is released for IBM PowerPC Systems, most likely sometime during the first half of 1995.

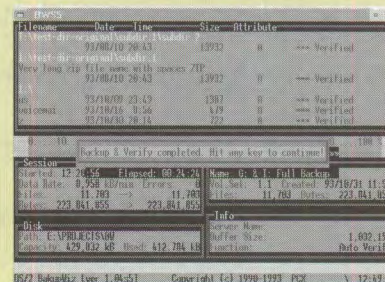
What it means for OS/2, though, is that OS/2 is more prominently established than ever before as IBM's strategic operating system for Intel platforms. When the results of the Workplace OS project finally see the light of day, they will almost certainly do so in the form of a "portable" version of OS/2 for PowerPC and other RISC architectures. It means that there is little remaining reason to doubt that OS/2 will be a strategic operating system from IBM for the long haul, not just for a comparatively brief transitional period. ♦

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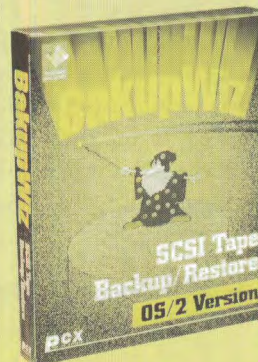


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Q & A

A straight-talk interview on topics of professional concern

The Objects of His Affection

Objects are Joe Guglielmi's business. From his vantage point overlooking the operating system wars, Taligent's president spoke with Editor Brad Klierer in late February about how his company fits into the computing environment of the future.



Brad Klierer: What was your background before Taligent's formation?

Joe Guglielmi: Well, I spent about 29 years with IBM in a variety of areas. I started off in what was sales and support in Hartford, Connecticut, then spent time in New York as a salesman and managing a sales territory, up through district manager of marketing in New York City in the early '70s. After that I spent time in Europe with the product development group and put together the 4300 strategy for Europe. I came back and worked in what was the marketing area for IBM, putting together all of their requirements and product marketing for the entire IBM product line. When we were putting out the PC, I worked with Don Estridge in setting up the first PC channels and getting them out to the marketplace.

So you were in on the ground floor with the development of the PC?

Yes—on the marketing side actually. Don was the development manager and I was vice president of marketing for the U.S. It was a very small group and I picked it up just as it was being introduced.

Did you continue working for that division?

No. In '85 I became CFO for the high end of our business line. I spent three years working with Carl Conte for all our 3090s and high end DASDs—that was all MVS. I was named IBM vice president in 1987 and developed a plan to merge all of our location development together into one group. That was called the Application Systems Division, which I ran from '87 through '91. From there I went back into the PC area working as general manager under [James] Cannavino for worldwide marketing and business development for the personal computer business. And then the reason I got into Taligent was that I was actually working on the team that put the Apple and IBM deal together.

How long were you working with Apple before the deal was actually announced?

This is an edited transcript of a February 22, 1994 phone interview.

Although I didn't start exactly at the beginning, the Apple discussion started in 1991. The early part—primarily discussions around the Power PC architecture and then Taligent—got very active in the second quarter. That was when I got involved.

Did these earliest discussions revolve around Apple's operating system and OS/2?

Well, no. Initially IBM had put together a strategy to begin integrating object technology into its various platforms. We had put together a separate partnership called Patriot Partners with Dave Liddell, out of Metaphor Systems. The whole scope was to build some technologies that would be built on top of OS/2 and other operating systems. This would begin the integration of object technology. IBM also had work going on in Austin on what turned into SOM and some document-centered work called CCOT. This was all happening prior to the discussions with John Sculley and Apple on what was called their Pink Project. So we had already started down the road.

At that early stage you were already working on an operating system that was object-oriented technology-based?

Well at that stage, Brad, it was really a set of object technologies. It wasn't a full complete operating program. It was much more a strategy to add substantial pieces of object technology to current operating systems. It was a strategy that didn't contemplate a substantial investment in OS services by themselves.

Okay, and is that where the bulk of your work is right now?

Oh, no. As a matter of fact if you look over our strategy and go back to page one when we started the company in March, there were two major centers of technology. One was the Pink Project from Apple. Pink really was a desktop-centric set of technologies that had an operating system base, a new operating system with a new operating kernel. It was a development system really optimized towards object development with a set of frameworks that comprised the application model as well. It was a brand-new standalone operating system.

IBM gave us access to some distributive computing technology plus SOM, and what turned into DSOM technologies. That was a set of parts that we started building into our product suite. Our first model was to take this entire suite and move it towards a more distributed computing client/server model than the original Apple design point and then ship a brand-new total environment. But as we got into discussions with customers, corporate developers (in the first six months we probably had 50 or 60 customers in here), they loved what they saw in terms of productivity—a very dramatic opportunity to write really robust first-class innovative applications. It was really the first time customers had been involved this early in technology planning.

Did they want this delivered earlier than you were seeing with your operating system strategy?

They wanted it delivered right away, I wanted it delivered right away too, and they even wanted it delivered early. They told us we needed to work on a way to make it much more integrated with their current investments. As a result of those discussions and discussions with ISVs, we ended up really deconstructing our strategy into three elements. One element, and this is where the bulk of the work goes on today, is a separate effort to put the frameworks into a portable application environment. Think of it as the object-application model that all applications are written to. The new news is that this application model will run on existing modern 32-bit OSs. Of course, OS/2 is a very substantial target so that OS/2 customers will begin programming using this object paradigm and still leverage all of their investment in OS/2. OS/2 will end up with the ability to carry this application model forward in the future.

Then, are the other environments the Apple and HP-UX?

Today, we are committed to making it run on the Apple environment, as soon as Apple gets their System 7 microkernel to where it can handle the 32-bit preemptive multischcheduling capabilities we need. That's very important, and that's why OS/2 is a great base for this technology. It is also committed to run on the Unix environments; we're working with AIX in particular. But now, as a result of the announcement in January, when we welcomed Hewlett Packard as an additional investor and partner, we're also making the application environment available on HP-UX. Now, a single application can be written that leverages the object frameworks, and it can run on OS/2, AIX, and HP-UX. In fact, it was designed to be extraordinarily portable from the beginning, so we have plans to move into other major operating systems offerings as the market demands. This gives an ISV and a corporate developer the ability to write an application and run it across the widest range of OSs and hardware platforms, PowerPC, Intel, and of course the PA-RISC architectures and others as they evolve.

When you talk about running it on top of OS/2, does that include Workplace OS or would that be considered a separate environment?

Workplace OS is an evolving strategy at IBM. We share pieces of the technology, like the common microkernel technology, with IBM. At one time we were developing our own unique microkernel. IBM and Taligent are now jointly developing a common microkernel off of a common code base, based on the Carnegie Mellon Mach technology. It was only really designed as a very small microkernel base that will have object-oriented device drivers and file systems and object-oriented system frameworks.

Essentially, the Workplace OS microkernel and the Taligent microkernel will be the same?

Exactly the same. That's why I think you will see the OS/2 customer getting the benefit of this technology being integrated today in their current offerings, and that is where it will show up

Q & A

first. Then if you think about it the way I do, OS/2, as we replace pieces of it, will kind of morph into this new fully object-oriented system we are jointly developing.

You mentioned three elements. One was the frameworks in the portable application environment. What are the other two?

The second is the operating system base, which we call Taligent Object Services. That's the piece we are jointly developing with IBM. It has all the fundamental service required to support the object environment. The third is what we call a Taligent Development System. This is a state-of-the-art object-oriented development system. As you think about objects, the problem is not writing millions of lines of code, because actually we want you to write a lot fewer lines of code and re-use a lot more. So our development environment is highly interactive—hyperlink, visual viewers and browsers, incremental compile capabilities so that you can change a little part of an object to see what it does. Rather than thinking about it as writing lines of code, think about it as shopping for objects.

Would this be more like a Smalltalk-style environment than a C environment?

Actually, it's interesting because Smalltalk has a lot of the capabilities. If you look at where object programming is today, there is a group of people who do Smalltalk and then there are people who are writing really large, robust applications on C++. C++ is a much more robust environment for writing the class system that we're writing. What we've done is take the standard C++ environment and modify it to add many of the features our customers have told us they really like in products like Smalltalk. So you get a very high level of productivity from using our development environment and from using these prefabricated frameworks. These are major subassemblies of programs and that's where we get the notion that you'll be able to write applications in months that today take several years. You'll get much higher levels of maintainability and reusability because you'll be using prefabricated, pre-tested modules.

Are all of these development efforts within the four partners, HP, Apple, IBM, and Taligent? Or are you going to outside vendors such as Digital?

Well, we haven't released a list of other partners, but we are working with a number of other vendors and suppliers of technology in the industry. For example, we are working with a variety of net-



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Circle #176

Q & A

working people. We're going to run on top of TCP/IP and we'll support SNA—we're working with IBM on those two—and, of course, we will support Ethernet and Appletalk, since these are very important to one of our partners. We will also support the IPX from Novell. That's an example of where we are working with several partners on underlying technology. We are also not developing our own database. We are working with database providers so that our framework will plug in on top of it.

When you say you are not working on your own database, do you mean a database application?

We're not writing a new Taligent base like a Sybase or an Oracle. We're our own object-oriented persistent store. We're dealing now with several suppliers of that class of technology in the industry to buy or license this technology for inclusion in our system.

With all of these cooperative efforts, will there actually be a Taligent box of software that people buy or will this be included as an IBM package for IBM computers and an Apple package for Apple computers?

The cute answer is yes. It will really show up in both ways. Initially the model is what I call a sell-through model. Our investors

have three major assets. One is, of course, that they bring the financial resources required for a project of this scale. This is a very large-scale, ambitious project—its goal is really to change the way the industry develops applications and programs over time. Secondly, they give us access to some mature technologies. IBM, Apple, and HP each have different strengths. We're getting access to distributed client/server technology and technologies that will allow us to interface with some of the standards emerging in the CORBA OMG area. Thirdly, they sign up as part of this to distribute—be a carrier, if you will—of this application model and to use it.

So our first rollout will be through our partners who will integrate the application model on their existing OSs. A customer will be able to write a single-object application and run it on top of OS/2, or HP-UX, or System 7, and we are negotiating with others to do the same thing. When we then put together a unique offering which would have our applications environment, our own object services, and our own development kit, they'll be a set of offerings that we will market as a Taligent set of offerings. These application environments will also be certified so that there will be a Taligent brand that says when you see the Taligent X

continued on page 72

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The Gerstner Era

Re•sist•ance is fū•tile

As Louis Gerstner marks his first year, his great accomplishment is that he still has a company to work for. An analysis of how Gerstner has handled IBM's predicament shows the road ahead remains long and uncertain. An analysis of Gerstner's style and determination proves that anyone or anything that stands in IBM's way will be shoved aside and left behind.

BY EDWIN BLACK

It has been a year since Louis V. Gerstner Jr. became IBM's chairman and CEO, inheriting a mind-boggling multi-billion-dollar complex of maladies and opportunities. During that time he has accomplished only one thing: he has kept IBM alive. No stunning new technology or strategic direction has emerged. Rather, the most radical program Gerstner put into effect has been to compel IBM to act like a rational business.

It took about a year for John Akers' successor just to begin the long road back to fiscal sanity. Indeed, it is because IBM is still alive, and because its downward spiral has been stopped, that Gerstner's first year is an extraordinary success.

Achieving that success has been brutal. Many oxen have been gored, and then disemboweled. Broken hearts and uprooted families mark every page of the calendar. Some 45,000 employees were let go last year. By the end of 1995, and after parting with Federal Systems, IBM will employ only some 215,000 worldwide. In 1989, more than 350,000 people were on Big Blue's payroll.

Unsympathetic, unsentimental, unrelenting, Louis Gerstner is determined to reengineer the most important company in the computer world. As he has said: "Anything or anybody that is not profitable is no longer part of IBM."

The 12-Hour Day

A typical Gerstner day at the office begins just after sunrise as he turns his sedan out of the driveway for the half-hour drive to Armonk from his home in Greenwich, Connecticut.

On most days, he drives himself to work. Unless he's due at nearby Westchester airport. Then his driver picks him up at home in the company's steel gray town car. If IBM's chief needs to whisk into Manhattan, the company's five-seat Sikorski helicopter is standing by. If he needs to visit another city, IBM's Lear-

jet is ready. And for an appointment in Europe, Gerstner uses the company Gulfstream.

When he is in the office—he's on the road a lot—Gerstner's typical day is grueling. In 12 hours he has about a dozen 30-minute meetings with leading customers and key senior managers. Lunch is typically served at his desk, generally a salad from the cafeteria. Dinner is often a business session with customers.

When Gerstner takes the elevator up to the third floor of IBM's Armonk headquarters building and strolls past the antique card sorters, down the corridor where the core of IBM's power is situated, he enters a nerve center of tough decisions. Four of his closest advisors are right there: Vice Chairman Paul Rizzo, CFO Jerome York, Senior Vice President of Human Resources and Administration Gerry Czernecki, and chief strategist James Cannavino. Cannavino formerly headed up Personal Systems, which owned OS/2.

Gerstner has each of the four tasked to the limit. Rizzo keeps tabs on everything and often acts with the power of the chairman when Gerstner is not available. York is waging a daily crusade to cut costs. He seeks financial reform in every facet of Big Blue's existence, from chip manufacture to the \$70,000 annually it costs the company to purchase envelopes imprinted with different confidentiality classifications.

Czernecki has the unhappy chore of cutting back the work force and then getting the most bang for the remaining brigades. Gerstner's future thinker is James Cannavino. Cannavino, along with Vice President Ellen Hancock, is faced with the challenge of sorting out IBM's multiple platforms, diverse product lines, competing projects, and even real technology advances that ironically hurt other company enterprises. The PowerPC, WOS, OS/2, AIX, Taligent, network products, mainframes,

client/server—it all goes into a soup that Cannavino must pick through in search of the most nutritious morsels.

Gerstner's earth-toned corner office is hardly opulent. It's large, but not that large. There's a small seating area for visitors. Some expensive oil paintings hang on the wall. Gerstner's desk sports an IBM PS/2 loaded with OS/2 and a stock market and wire service program called Shark. Next to it is a ThinkPad.

One side of the office is called "the Technology Wall." The shelves bear a PS/1, boxes of OS/2, CICS, and DB/2, and a TFT Display, a space-age thin monitor connected to a prototype PC product. Gerstner can't even look up from his desk without seeing what his company is all about.

Adjacent is a small conference room with an OS/2-based computer. Small meetings, involving up to a dozen people, are constantly held here. Unlike most IBM conference rooms, the standard overhead projector is missing.

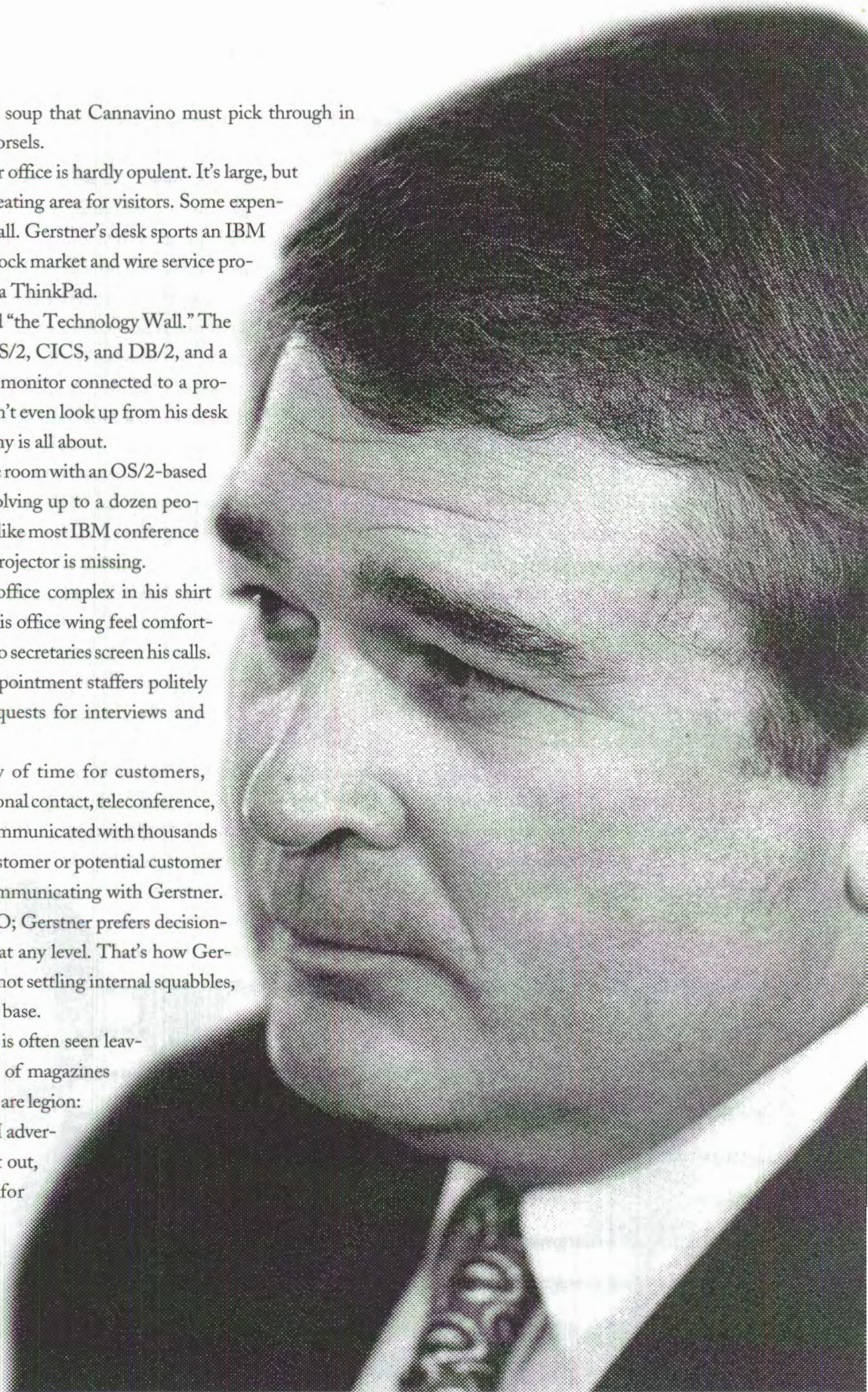
Gerstner walks around the office complex in his shirt sleeves, and most members of his office wing feel comfortable just popping in and out. Two secretaries screen his calls. A platoon of press aides and appointment staffers politely decline several dozen daily requests for interviews and appearances.

Gerstner does make plenty of time for customers, though. In the past year, via personal contact, teleconference, e-mail, or letter, Gerstner has communicated with thousands of customers. In fact, being a customer or potential customer gives you the best chance of communicating with Gerstner. And you don't have to be a CEO; Gerstner prefers decision-makers or decision-influencers at any level. That's how Gerstner wants to spend his time—not settling internal squabbles, but shoring up IBM's customer base.

A voracious reader, Gerstner is often seen leaving the building late with piles of magazines and clipping reports. The stories are legion: Gerstner sees an unsettling IBM advertisement, or a news story, rips it out, and sends it over to an aide for action.

The Cash Challenges

Of the multitude of problems Gerstner has faced in his first year, the first and foremost is cash. When Gerstner



FEATURE

stepped in, he was forced to administer some quick financial CPR to the company CPU. Wall Street estimates that IBM's working capital was \$5.1 billion in 1991. One year later, the company had only \$3 billion. Worse, hardware revenue plummeted some \$12 billion over roughly a four-year period between 1989 and 1993. By the time Gerstner came on board in April 1993, the year's Q1 and Q2 dike-busting budgets were already spent or committed. It's a culture that's slow to change. Indeed, until just weeks ago, IBM managers were still trying to find inventive ways to get rid of unspent budget from 1993.

Understand: at IBM, power is budget. For years when rivals at IBM wanted to hurt you, they didn't demote you, reassign your staff, or reprimand you. They simply took away your budget. Gerstner has gone far toward ending that policy. Budgets are now based on business sense, not bed partners.

But being prudent today is not enough. Gerstner knows all too painfully that last year was IBM's worst in history. Its credit rating was lowered in 1993. And shortly after Gerstner was appointed, Forbes openly speculated that IBM might actually run out of cash.

For the sake of cash, the company is still slashing and reslashing budgets, cost-shifting, consolidating, trying to accelerate its receivables, and in many cases, delaying undisputed payment obligations. At the end of last year, many approved recurring invoices from vendors—invoices that in the past had routinely been paid—were rejected by the accounting department for "technical discrepancies." While the invoices were resubmitted, IBM bought time. In fact, the company still owes money on invoices delayed from last August because of "documentation" requests.

Beginning last summer, IBM began finding ways to convert former budget expenditures into cash by asking developers, business partners, and associates to pay to participate in what were previously free promotions. Outsourcing became even more widespread as IBM asked vendors to compete for the right to do jobs IBM could not cost-effectively perform on its own.

Today things are even tighter. Advertising reform has become a priority. It now takes a special corporate override for any publication to run more than three IBM ads (the rule has been on the books for years, but this year is being enforced with new vigor). Rampant uncoordinated advertising by company managers in far-flung corners of the IBM empire has been curtailed by a joint effort of IBM corporate ad managers and the lead agency for most of the company's software lines, Lintas:New York.

Travel expenses are routinely being sent back for further documentation, whether filed by the lowest staff member or PSP President Lee Reiswig himself. That's not new. But what is new is the zeal of IBM's auditors. The PSP convention support staff was recently shook up when three popular veteran support staffers were let go because of questions regarding their travel expenses.

Cash is also the reason IBM swallowed its pride—Gerstner would probably say IBM can't afford pride—and invited Hewlett-Packard to help fund Taligent. Cash is the reason that IBM sold off Federal Systems for \$1.6 billion, and why the Armonk headquarters and IBM Mutual Funds are available if anyone wants to buy them.

Gerstner has a personal as well as a professional stake in the company's health. His total compensation is



pegged to IBM's stock performance, as it was at RJR and American Express. His base IBM salary is \$1.5 million, but his first 12 months of service will bring \$8.5 million in salary, bonus, and special compensation, plus options good for 500,000 shares of stock that may be worth more than \$38 million. All this is more than double the compensation he enjoyed just a year before at RJR.

No wonder IBM's 1993 annual report leads with the headline: "Dear Fellow Investor." In his letter to shareholders, Gerstner declares: "When I joined the company in April, the priorities were clear: IBM must be profitable. IBM must be more competitive. IBM must increase shareholder value. IBM must grow."

The Reorganization Challenge

No major company has gone through as much reorganization as IBM has in the last two years. Just when the John Akers regime made decentralization and splinter grouping the mode, Gerstner came in and said, "Hey, it's one company." Personal Systems disappeared, the mainframe and workstation groups were merged, and numerous other groups, divisions, and lines underwent metamorphoses.

Today, there are execs without business cards, and business cards without execs. There are groups without mandates and mandates without groups. And there are any number of schizophrenic entities that have one foot in the PC Company and one foot in the software company. "We're still dropping shoes," PSP Communications Director Peter Hayes recently told *OS/2 Professional*. Some IBM managers predict that soon there will only be three IBM entities: a hardware company, a software company, and the corporate management arm known as Marketing and Services.

As a result of this seemingly endless reorganization, many staffers have a sense of corporate disconnection. Perhaps more importantly, IBM is having a hard time living up to the promises made to its business partners and associates. Hard-won agreements are discarded in a moment when a new manager takes over. Painstaking plans must be resubmitted every time a new management line is drawn. For example, in the weeks between Fall Comdex and New Year's Day, senior PSP marketing officials John Patrick and John Osborne were transferred out, and John Soyring and Bill Rich were given new assignments. As a result, all the 1994 plans had to be reshaped and repitched; at press time, some of them have still not received final approval.

In fact, some vendors have been specifically told to disregard written instructions from their traditional contacts at IBM unless accompanied by an authorization representing the corporate

office. For example, Lintas warned recently that if any publication ran an ad that was paid for outside the agency channel, it would be expected to provide an equivalent number of pages of free advertising.

Communications such as these have placed many businesses in the position of choosing which IBM voice to heed. It also means that at a time when IBM needs all the cooperation it can get, it has become hazardous to take IBM at its word.

The Strategy Challenge

Resuscitation was the urgent priority. But now that the company has reported its first profitable quarter in a long time, Gerstner must plan a new course for the company. He now regrets answering a CNN reporter's question about vision. Gerstner makes it clear that once the journey toward financial and organization health has begun, you bet IBM will develop a strategy.

The strategy will be coming from someone who was a Big Blue customer for the past two decades. The IBM of the next two years will develop technology not because it is possible, but rather because it is needed to improve the business productivity and profitability of its customers. The buzz word around IBM conference rooms these days is integration. And that means one of the hottest IBM units is the Integrated Systems Solutions Corp., the three-year-old wholly owned consultancy that specializes in systems integration and—a key word in IBM's future—outsourcing.

IBM is now making decisions analogous to those made in Washington about weapons systems in the '80s. Remember when Jimmy Carter chose the cruise missile over the B-1 bomber? Gerstner is looking at competing products and business lines in much the same way. Is IBM going to triumph with OS/2, WOS, object-oriented computing, the PowerPC, multimedia, speech recognition? Or does its future lie with bold new ventures such as movies on demand? All of it? None of it?

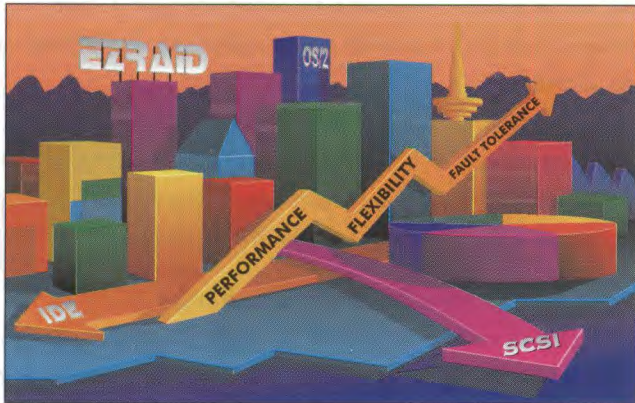
No one at Armonk has classified it this way, but it seems that whatever strategy emerges depends on being smart four ways. IBM must make smart, sell smart, seem smart, and stay smart. If it does all that, it will *be* smart.

The Four Smarts

Gerstner knows there is waste in any manufacturing operation as colossal as IBM's. That's why company leaders are now demanding that products come to market faster. IBM has traditionally taken so long to complete and market its projects that competitive efforts have easily undermined it. Moreover, products now

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Circle #178

FEATURE

are so interdependent that if one of the contributing components is off schedule, it has a domino effect. For example, last year, the PowerPC was broadly hinted for early 1994. The product is now slated for later this year, and project developers seriously doubt whether a usable OS/2 personality will be available until 1995. The impact spreads across the entire company.

At the same time, OS/2 2.2 and the 4mb version are a single effort but separate projects, both planned for June release. The debate is still raging over whether to combine the two or promote them as separate upgrades. This sort of debate is part of a very long list of such problems that permeate IBM, and it's the kind of chaos that makes Gerstner's blood boil. Very few of those disputes actually trickle up to Gerstner personally. But when one does, chances are it will be rectified quickly by a Gerstner who has little patience for such indecision.

Of course, IBM must market, advertise, sell, and service its products if IBM is to succeed. That's why Gerstner has restructured the 25,000-person sales force's commission structure. In the bad old days, salespeople were rewarded on the basis of activity, not profitability. Now, IBM has shared the profit details of its products and services with the sales force, and is pegging 60 percent of commissions to profitable sales activity. The other 40 percent of commissions is tied to customer satisfaction, as measured by after-sale surveys.

IBM must also solve the problem of its dysfunctional advertising. The new tactic is to promote competing products less and integrated solutions more. Hence, the public will soon see multiple-product-solution advertising that promotes the strength of IBM's diversity. And the release of the new advertising will coincide with major product releases, thus reaping the benefit of a coordinated message.

But there will be little advertising progress until IBM can speak coherently to its own advertising agencies—about 30 in all. Lintas, the lead agency, deserves a medal for putting up with a client that changes its mind minute-to-minute, and makes a farce of the word planning.

At the same time, Lintas probably has too pervasive a lock on IBM's extensive software advertising. At least one product manager claims he was able to save \$250,000 last year by avoiding the mandated Lintas advertising route. IBM advertising execs might answer that the manager may have indeed saved \$250,000, but shortchanged the company by not advertising in sync with other programs. His comeback of course would be that nothing was

Available through OS/2 EXPRESS

FEATURE

being done to promote his product, and something was better than nothing. The whole hypothetical exchange illustrates the dire need for reform and reason in IBM's advertising policies.

Regardless of quality, people are disinclined to buy from a company they have no confidence in. That's why another Gerstner imperative is to restore the morale of more than a quarter-million IBM employees. And that's why IBM must stop shooting itself in the chip with bad manufacturing, marketing, and strategic moves. Public relations is of fundamental importance.

IBM has turned a rotten PR situation around in the last year. Before Gerstner, return calls from the PR apparatus were a freak of nature. Today, PR staffers are actively hyping company interests via channels ranging from *OS/2 Professional* to Howard Stern. Moreover, IBM advertising is busy on television telling customers, "There's never been a better time to do business with IBM."

IBM must not only succeed today, it must figure out how to retain its competitive edge into the next century. Gerstner knows this, and that's why he is insisting on cleaning up IBM's technological jigsaw puzzle. He wants the company to speak to the business world with one voice, rather than with what he calls "a constant cacophony of new technology."

And the business world is only the beginning. By this time next year, IBM will be entrenched in the home market and positioned to cruise the information superhighway. In January, Gerstner brought on one of his most trusted friends, Richard Thoman, to head up both the PC Company and the Prodigy venture. Thoman's mission is to fuel up IBM's race car for the Information Superhighway.

The most important thing to remember about Gerstner's first year is that it was only the first year. It will probably take another one just like it before IBM really begins impressing the world. But the technology world, the investment community, and indeed much of the workings of the United States government are dependent upon the survival and prosperity of IBM. Gerstner knows how fundamental IBM is to American society in ways that far outweigh debates about chip speeds and benchmarks.

If IBM fails, we're all in trouble. Gerstner's mission is to make sure that doesn't happen. So for all IBM's employees, its vendors, its associates, and even its customers: Resistance is indeed futile. ♦

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Circle #206

The Unfulfilled Promise of

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BY HERB TYSON

One ad reads *All are 32-bit applications that fully exploit the advantages of the OS/2 platform.* Another proclaims the product to be *new function-rich 32-bit.* This one promises *to turn loose the full 32-bit power of OS/2.* That one promises *to unleash the full power of 32-bit architecture.*

The package arrives at your office—by express delivery, of course. Not wanting to slow down this powerful 32-bit speed demon, you install it as quickly as you can. Eager to witness first-hand the power, the speed, the thrill, you quickly double-click on the object to energize it into action.

Then you wait. And wait. And wait. If you're using a 386 running at 20mhz and it's the 32-bit Lotus 1-2-3 for OS/2, you might wait 45 seconds or longer. If it's Ami Pro for OS/2, you might wait 60 seconds or more. For WordPerfect 5.2 for OS/2, it's a good 40 second wait. Even for the much-heralded DeScribe, you'll be sitting in the cockpit for a good 30 seconds before getting clearance from the tower.

Where are the Singing Cats?

Early on, the technical documentation proclaimed that 32-bit programs for OS/2 could be leaner, meaner, and faster. Why? Well, for one thing, the API-rich environ-

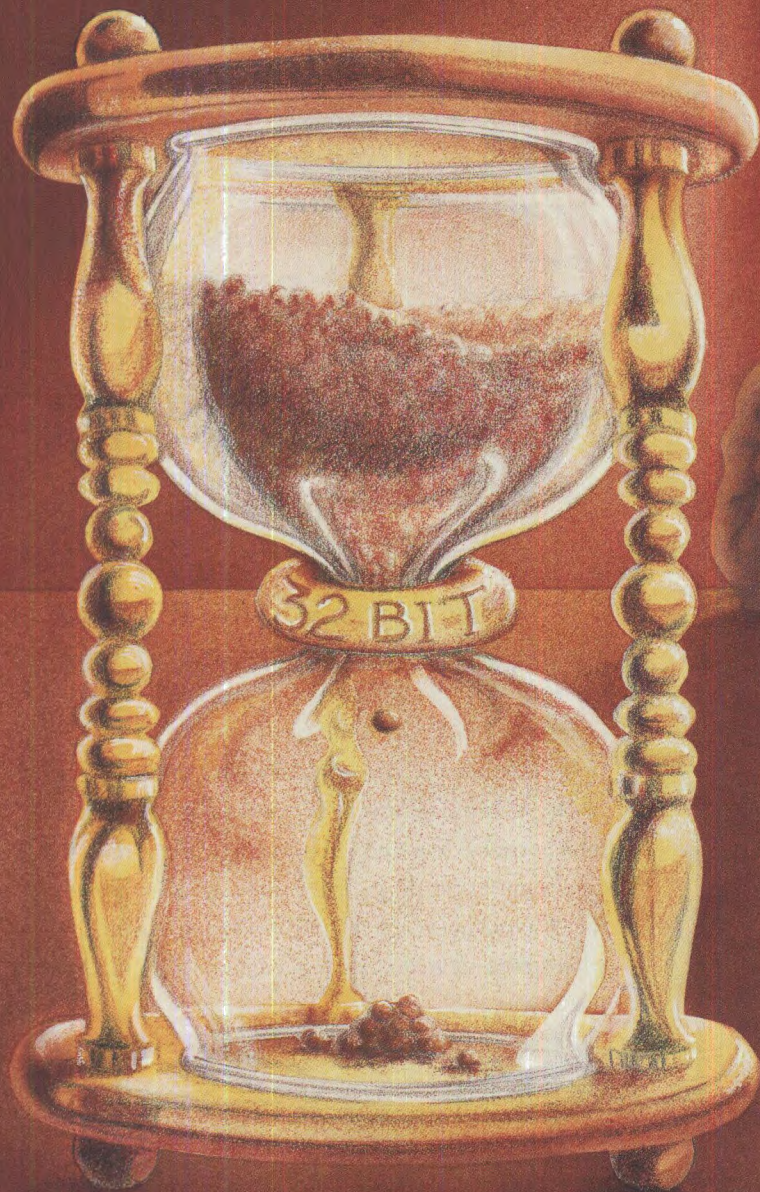
ment was supposed to mean a highly optimized, modularized operating system that provides powerful components to the programmer. Not only should the applications run faster, but the job of programming should be faster as well. Executables should be smaller, since they can rely on already-written dynamic link libraries that are part of the base operating system.

So if we have all these wonderful APIs to take advantage of, why in the world do the .EXE and .DLL files for DeScribe occupy more than 5mb? Why does Lotus's 1-2-3 for OS/2 include more than 6mb of .EXE and .DLL files? And why, pray tell, was the first release of Ami Pro for OS/2 more than 8mb in size?

And—the most important question of all—why do they seem so slow when compared to their Windows counterparts?

One reason, to be sure, is that the OS can't do everything. Many of those .DLL files are dedicated to file conversions, drawing modules, and other special-purpose parts of the applications. What we can't see, however, is whether or not everything they're doing is essential, or whether they are duplicating functions and services that are already provided by OS/2. After all, all the "function-rich" APIs in the world won't do you any good unless you use them.

32-bit Software



SPECIAL REPORT

WHAT'S AN API?

API stands for application program interface. To create a Presentation Manager or Windows environment, IBM and Microsoft standardize the way things look and the way things happen. Rather than requiring each programmer to write his or her own routines for putting a minimize/maximize button onto a window's title bar, there are APIs that the programmer can use. This not only simplifies programming, but it creates a standard look and feel for all programs running in that environment. You can think of APIs as similar to parts of a Lego or Duplo block set. The richer the API set, the more the programmer can do without having to build every program module from the ground up. ♦

One place you can see whether or not the application is duplicating functions provided by the OS/2 is in the Help system. Take a look at 1-2-3 and Freelance Graphics, for example. Rather than use the excellent and highly acclaimed help IPF (information presentation facility) built into OS/2, Lotus instead chose to use its own help system.

In the short run, this helped Lotus launch 32-bit versions for OS/2 quickly. In the long run, however, it very likely makes the OS/2 versions bigger, slower, and less functional than they would be otherwise.

Unfortunately, the converse isn't true: Even though Ami Pro for OS/2 *does* use OS/2's IPF for Help and the latest release trimmed more than 3mb of fat from the files, that didn't make it tiny. These changes do demonstrate that Lotus is learning, though. Maybe we'll see the IPF and tighter code in all of Lotus's OS/2 applications in their next releases.

Part of the problem, according to Pete Norloff, a longtime OS/2 programmer who has freelanced for GammaTech, Amaze, and other software companies, is that programmers aren't completely up to speed. Many companies were slow to begin taking OS/2 seriously.

Established DOS and Windows developers are only now beginning to gear up for OS/2. The first priority is to get their programs rewritten enough to recompile under one of the 32-bit OS/2 compilers. In time—assuming there is time—neophyte PM programmers will learn the ropes and begin taking better advantage of OS/2's built-in facilities. Until then, however, many will try to shorten development cycles simply by doing in OS/2 what they've been doing under DOS and Windows: rolling their own. The more complex the programs (like those from Lotus), the longer it will take to take advantage of OS/2's environment.

Not (Yet) the Cat's Meow

According to technical consultant Michael Kogan, author of *The Design of OS/2*, another part of the problem is beyond the programmer's control: OS/2 2.1 is still a mixture of 32-bit and 16-

bit subsystems. In the early promotions for OS/2 2.1, IBM placed a heavy emphasis on the new 32-bit graphics engine. It may very well have been a mistake, says Kogan, to introduce the 32-bit graphics engine before a 32-bit PM windowing subsystem was also available. The windowing APIs—an integral part of every Presentation Manager program—are still 16-bit.

Internally, this means that each time one of those API calls is used a 32-bit program must convert between 32- and 16-bit addresses. This ends up adding time when windowing functions are used—for example, when a program is loading, and any time any kind of window display has to be changed or updated. The end result can be slower performance times for 32-bit programs operating in a mixed API environment than those that are turned in by the comparable 16-bit programs operating in a pure 16-bit environment. The good news, however, according to sources at IBM, is that a 32-bit windowing layer looks likely

for release during 1994.

What Happened to "OS/2-Enabled"?

Just as it took a while for developers to give their DOS applications a real "Windows" personality, it will take a while for developers to make the same transition with OS/2-PM programs.

It's not just a matter of recompiling the programs. It's also a matter of learning how to take advantage of the object-file system, enabling drag-and-drop, and learning where to take advantage of multithreading. Not having had many of these facilities in the past, programmers new to OS/2 need to widen their views of what software can do. A few good model programs will help lead the way.

Perhaps not surprisingly, several creative uses for OS/2's capabilities are starting to show up first in some excellent offerings from single developers and small vendors, including TE/2, KWQ-Mail/2, PMCOMM, and Golden CommPass. Small vendors typically have shorter development cycles, allowing them to innovate much more quickly. They also have more incentive to innovate, since being a little different and a little better helps attract

attention to products that don't have large advertising budgets.

The fact that many of the best examples of emerging OS/2-enabled programs are communications-related programs also shouldn't come as a surprise. Communications is the one task users most often cite when asked to catalog the benefits of a multitasking and multithreading operating system.

What's needed is for other applications to utilize multithreading as well. When a spreadsheet, database, or word processing

program executes a macro, there's an excellent opportunity to spawn a new thread. Ditto when converting files between formats, performing a calculation, or sorting data. Remember that annoying hourglass symbol you get in Windows? Well, OS/2 has its own annoying clock symbol. Thanks in large part to multithreading, however, users of well-designed OS/2 software are seeing it a lot less often.

A hopeful sign is that the demand for OS/2-experienced pro-

Development, DeScribe-Style

Surprisingly, DeScribe Inc. produces and maintains its word processor for three different platforms—OS/2, Windows 3.1, and Windows NT—using just four programmers. How do the folks at DeScribe do it? Well, for one thing, they use the identical code for all three versions. To handle different environments, according to Allan Katzen, president of DeScribe, they use a lot of conditional compilation statements. The fact that they don't have to manage three different projects means that incremental advances and fixes are distributed much more quickly to all three versions.

OS/2 and Windows are moving targets, especially right now as Windows NT and OS/2 head toward more optimal versions, and as Windows itself crawls slowly toward Chicago. To cope with the steady stream of changes, DeScribe uses the compilers and other tools provided by IBM and by Microsoft. Katzen says that DeScribe will likely switch to Borland's C++, which would allow it not only to use the same code for all platforms, but the same compiler as well.

For now, however, Katzen says Borland's compiler isn't as good at producing clean, bug-free code as the compilers from IBM and Microsoft. Other programmers also have indicated that Borland's compiler seems better at producing compact and fast-running executables, but its ability to catch GPF-causing bugs seems weaker.

Until version 4, users frequently noted that the help engine in DeScribe didn't use OS/2's IPF (information presentation facility). The IPF is the facility that gives OS/2 its excellent hypertext help system. According to Katzen, getting to this point wasn't easy. Previously, DeScribe used its own help engine—similar to what Lotus does—because it meant the developers could use the identical system for the OS/2 and

Windows versions. When users complained that DeScribe's help system wasn't as good as OS/2's own native IPF, DeScribe reluctantly undertook the formidable task of building separate versions for OS/2 and Windows.

Recently, however, Katzen says that they're trying a new help compiler that will let them use the same base document to generate help files for OS/2 and Windows programs. When compiling for OS/2, the resulting file is IPF-compatible. From a developer's standpoint, this is the perfect solution, since you no longer have to choose between maintaining different sets of help documentation and writing your own nonstandard help engine.

Katzen says DeScribe doesn't really have formal development cycles per se. The four programmers are constantly looking into the code, trying to find ways to eliminate wasted memory and inefficient code to make DeScribe smaller and faster. They also make extensive use of IBM's optimizing tools. Optimizing for OS/2 helped DeScribe realize performance improvements from 25 to 40 percent.

With just four programmers, changes to DeScribe can be initiated and approved much more quickly than you'll see with larger companies such as Lotus. That's why you'll tend to see comparatively large and frequent leaps in performance and features between the different point releases in DeScribe.

Of course, having just four programmers can also be a liability. Version 4.0 originally was supposed to include footnote support. When the assigned programmer unexpectedly decided to leave DeScribe, however, the team was left without its footnotes. According to Katzen, they've changed the approach, and that sort of thing shouldn't happen again. ♦

SPECIAL REPORT

grammers is on the increase. A year ago, advertisements for programmers rarely mentioned OS/2. A look at the *Washington Post's* current Help Wanted section reveals that a significant number of software development companies now list OS/2 among the qualifications for their jobs.

Striving Towards Purr-fection

The biggest factor, says Allan Katzen, president of DeScribe, is time. Developers need time for their products to mature, and most 32-bit OS/2 programs are still in their infancy. DeScribe, ready-version 4.1 for release later this year, was originally an OS/2 1.3 product. With four major releases for OS/2 under its collec-

tive belts (including two for OS/2 2.x), DeScribe has built a solid foundation of experience in programming for OS/2. Many of the other 32-bit programs you're seeing—despite nominal versions like 5.2, 3.0, and 2.0—really are 1.0 releases. These products don't yet have a maturity comparable to their Windows counterparts.

In time, programmers will get to the optimization stage, where they seek out waste, make arrays smaller, run optimizers, and try to shave another few seconds off the time it takes to load, save, or open.

Why Isn't 32 Bits Twice as Fast as 16 Bits?

Kogan and Norloff both make the point that 32-bitness doesn't necessarily mean faster programs, even in a pure 32-bit operating

The Hard(ware) Truth

If you're seeing slow performance not reported by others, the problem may be on the local level. Differences in the amount of installed RAM, CMOS settings, disk performance, system tuning, and how much software you're running will spell tremendous differences in performance.

To see all applications, not just 32-bit applications, at their best, you'll need to give them as much native RAM as possible. If you have a LAN loaded, or are using WIN-OS2 at the same time you're using PM programs, you'll find yourself quickly strapped with only 8mb of RAM. When your system runs out of actual physical memory, your applications will have to wait until OS/2's virtual memory manager can swap memory pages to disk. This now makes you a victim of your hard disk's speed.

If you have a fast, cached, bus mastering SCSI disk system, you won't find this limitation nearly as much of a bottleneck. However, if you have mainstream hardware, the IDE disk that seems lightning fast under single-tasking DOS is a pure bottleneck under OS/2, especially in lower-memory systems that rely heavily on OS/2's virtual memory management.

Another bottleneck on the 32-bit path to speedy processing is video. Thanks to the local bus and to the emerging PCI, video processing speeds are on the increase. For many, however, optimized video speed still remains an unfulfilled part of the promise.

A surprising number of "OS/2 is slower than molasses" cases turn out to be the result of less-than-optimal CMOS

settings. For example, to evade a variety of installation snafus, OS/2 installation procedures recommend disabling external and internal memory caching. If you encounter other difficulties while installing OS/2, it's very easy to forget to re-enable caching once installation is complete. In fact, most systems don't even require them to be disabled, but IBM wanted to head off problems at the pass.

Does the caching make a difference? You bet it does! This article was written on a 486/33 with 16mb of RAM. With external and internal memory caching disabled, it took both 1-2-3 for OS/2 release 2.0 and DeScribe 4.0 45 seconds just to start. With external and internal memory caching enabled, 1-2-3's starting time dropped to just under 15 seconds and DeScribe fell to just under 17 seconds. Virtually all other operations received a similar boost in speed.

Another "operator error" problem is poor use of system resources. If your system has 32mb of RAM, you may well be able to afford a 4mb virtual disk (RAM drive) to speed up a particular application. Or you might be able to justify allocating 4mb to disk caching. However, at 8mb or even 16mb of memory, you'll do well to give as much memory as possible to your system, leaving the size of any disk caches to those set by OS/2 during the installation and not wasting precious memory on a RAM drive. Otherwise, you're gaining very little speed in one or two applications in exchange for a system that is, on the whole, memory strapped and slow. ♦

SPECIAL REPORT

system. Remember, we're talking *bits* here, not *megahertz*. More bits doesn't necessarily mean faster. It can, though—it depends on the type of program. Since 32-bitness makes memory operations potentially more efficient (programs don't have to spend clock cycles shuffling segments), a program that needs gobs of memory potentially can move faster.

Norloff notes, however, that not all programs need gobs of memory. And if a program fits completely into a single 64k segment it will actually run faster as a 16-bit program, simply because it's faster to manipulate a 16-bit program's two-byte addresses than a 32-bit program's four-byte addresses. The fact that addresses are wider also means that a program compiled under a 32-bit compiler usually will be larger than the identical program compiled under a 16-bit compiler.

If a program has to manage a lot of data and graphics, however, going the 32-bit route can result in better performance. Likely beneficiaries include spreadsheet, database, and desktop publishing applications, as well as other complex programs whose routines don't fit into a single or a few well-managed segments. Given the increasing number of programs that fall into these categories, the 32-bit programming environment is fast becoming essential.

However, when you move to a 32-bit flat address space, according to Katzen and Norloff, what happens is that programmers tend to become less diligent about optimizing their code. In a segmented 16-bit world, the programmer is forced to keep an eye constantly on the program size, to force it to fit. The result often is that development time takes longer, but the resulting programs are faster and leaner.

With a program virtual address space of 512mb in OS/2, however, the programmer suddenly isn't worried about running out of memory, and tends to get a little sloppy. That's why many of the new 32-bit programs you see consume four or more megabytes of memory. It's not that 32-bit programs necessarily have to be so big, it's that programmers haven't been forced to be efficient the way they were when programming for DOS.

With constant rewriting, reviewing, optimizing, and attention to memory efficiency, programmers can reduce the amount of memory, disk space, and time these programs consume. Remarkable gains in speed and resource efficiency are there for the ask-

ing. Throughout DeScribe's evolution, we've seen improvements in speed and reductions in memory usage—the result of several development cycles. No doubt we'll see similar gains in the offerings from Lotus and others, as well. But, it will take time.

Is There Time?

Beyond the technical issues, a key question is whether or not we'll ever see a flood of well-designed 32-bit programs for OS/2. Rather than make the investment of time and resources to learn

It's not that 32-bit programs necessarily have to be so big—it's that programmers haven't been forced to be efficient the way they were when they were writing for DOS.

OS/2 programming, a number of major developers—WordPerfect, Micrografx, Aldus, and Microsoft—have decided to put their eggs into the WIN32 basket. They appear to be trusting that the *integrating* aspect of OS/2 will allow them to maximize market share by developing just for a single platform.

If this scenario plays out, PC users will indeed have a suite of 32-bit object oriented applications. However, they won't be in the OS/2 mold. As long as the resulting applications work well, make good use of available resources, and live up to the promise of being intuitive and easy to use, does it really matter? Clearly, it does to a number of determined (some would say *purist* or *fanatical*) OS/2 users. It does if those apps run more poorly or are more limited in the OS/2 environment than in the Windows environment. Whether or not it matters to enough users and IS managers to impact on the market, however, only time will tell.

In the meantime, there are plenty of opportunities for smaller developers to address the largely untapped four-million-and-growing installed army of OS/2 users. For developers who take the plunge, a large share of the OS/2 market may well be more profitable than a small share of the Windows market. Whether or not they can succeed will depend on how well and how quickly they learn to take advantage of OS/2 and the forthcoming Workplace OS, which promises a quick migration of OS/2 applications into more portable form.

SPECIAL REPORT

That leaves OS/2 aficionados in a precarious position, however. Many like the Workplace Shell as a desktop solution, even in the absence of true OS/2 applications, and are content to use OS/2 as an alternative environment for running Windows and DOS applications. Others, however, spurred by OS/2-aware applications such as DeScribe, want to extend OS/2 functionality to the whole suite of applications.

Of the larger developers, at the moment, only Lotus, backed by IBM, seems willing to make a broad commitment of resources to provide a full slate of mainstream business applications for OS/2.

Deciding When to Get Wet

The biggest unfulfilled promise of all remains a smooth transition from 16-bit to 32-bit applications. At the developer level, programs must be rewritten for new APIs and new memory models, whatever the ultimate 32-bit path. Unfortunately, that leaves users stuck with an odd mixture: a selection of familiar applications using level 1 code (replete with wasted memory and processor cycles) with a peppering of slick new applications that sport

an unfamiliar interface.

The quandary for the MIS manager thus becomes: When do I jump to the 32-bit apps? When will the advantages of long file names, a uniform PM-style (or other, yet-to-be-revealed) user interface, and improved productivity outweigh the threats to backward compatibility, the dangers of unfamiliar or less robust code, and the non-trivial costs of shifting an enterprise IS standard?

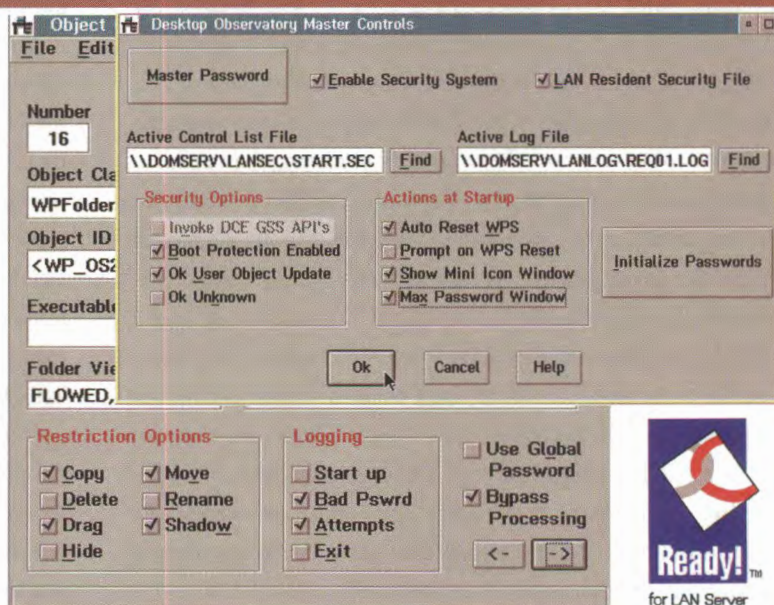
While the world waits for the killer 32-bit app (code named Godot), the real answer may flow in unnoticed. The small 32-bit apps gradually mixing into your working environment—small but critical productivity programs such as communications software and utilities—suggest the flood may be closer than you think. These are the first tentative steps into the 32-bit waters. Choose to dive in or not; the tide will roll in. ♦

Herb Tyson is a computer industry analyst and consultant and the author of several books, including Your OS/2 2.1 Consultant, 10 Minute Guide to OS/2 2.1, and the Word for Windows 6 Super Book.

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Circle #88

Workplace NT: April Fool or Food for Thought?

Maybe IBM should give up on beating the folks from Redmond and instead join them.

BY MICHAEL S. KOGAN

Workplace OS (WOS) is scheduled to enter alpha testing by the end of the second quarter of 1994. The initial alpha release is for the PowerPC platform, and is primarily for the development of device drivers. It will not include support for running DOS or Windows applications and the OS/2 personality probably will be incomplete.

Nonetheless, limited though the initial alpha version will be, it is becoming clear that the development of the new OS represents a Herculean endeavor, one on the order of magnitude more difficult than creating OS/2 2.x.

Consider the amount of work IBM must complete to create a fully functional WOS that does everything today's OS/2 2.1 can do. In addition to the basic microkernel work and development of the OS/2, DOS, and Windows personalities, IBM must also rewrite all the device drivers, file systems, network drivers, and utilities. The task is also a significant piece of work for third parties and system vendors that provide device drivers and subsystems.

When will we see a fully functional Workplace OS that does everything OS/2 2.1 can do? Probably not until the second half of 1995, perhaps even early 1996. This is because WOS requires that developers produce a huge amount of new code that must then be extensively tested.

With IBM dedicating to WOS more than 2,000 people and a budget running into hundreds of millions of dollars, it is difficult to see how IBM can achieve a return on its investment, even

if WOS ultimately achieves a 50 percent share of the PowerPC market.

In a Perfect World

Let's assume for the moment that it is 1995, a fully functional WOS for PowerPC has shipped, and IBM has accomplished the development of a decent number of drivers. Even in this perfect world, there are still some serious concerns that must be addressed about WOS and its primary competitor, Windows NT.

Windows NT and WOS have the same design goals and similar architectures. Thus, they will have similar limitations with respect to hardware requirements, performance, and compatibility when compared to products like OS/2 2.x and Windows 4, aka Chicago.

Developmentally, Windows NT is three years ahead of WOS, and it's not standing still. NT already supports the x86, MIPS, and Alpha architectures, with PowerPC support due by late 1994 and PA-RISC and SPARC in 1995. It already has cross-platform device driver and file system driver models and a good number of drivers available. NT also has a microkernel architecture that supports multiple personalities.

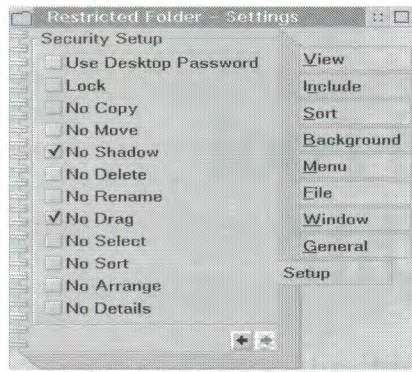
By late 1995 and early 1996 NT will be much more stable and have much more processor and device support than WOS, which will be in its initial release.

Back to the Future

Let's consider another tack IBM might try for getting OS/2 to RISC platforms—Workplace NT. Why not just port the OS/2



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EYE ON THE MARKET

personality and Workplace Shell to Microsoft's NT architecture and be done with it?

Today's Windows NT meets all the requirements of WOS, except it does not run 32-bit OS/2 applications and the Workplace Shell. If IBM were to use NT, as the original OS/2 3.0 plans called for in 1990, IBM would not have to recreate the wheels that Microsoft has already built.

Furthermore, IBM would not have to face what is shaping up to be a long uphill battle to get device support for WOS. Hardware systems manufacturers, suppliers of peripheral devices, integrators, and users would all benefit.

Using NT as the basis for WOS would permit IBM to reduce dramatically the amount of work on its plate and allow it to focus on other areas of potential return such as PowerPC hardware, object technologies, tools, subsystems, and applications. IBM could also focus on filling in some of the holes in the OS/2 personality, such as adding 32-bit console I/O and memory mapped files.

Workplace NT would be as good as Windows NT with respect to hardware requirements, performance, and compatibility, and would offer better usability. It would also support WIN32 programs—WIN32s, WIN32c, and the full-blown WIN32—something that would have to be added to WOS.

Why not Workplace NT?

WOS partisans will tell you how much better WOS will be than NT with respect to hardware requirements, performance, compatibility, and stability—all in its first release! If you believe this, you probably also think we can reduce our budget deficit by increased spending. Workplace NT would be more mature and stable, would support more platforms, have more drivers, and as a result proffer more opportunities than WOS.

For IBM, though, licensing issues and dependency on Microsoft are significant inhibitors. But IBM already has to pay MS royalties on the personality-specific portions of WOS, and how much of a return on investment can IBM really be expecting from the personality-neutral portions of WOS like the microkernel and drivers? Especially with a minimal OS/2 application market presence? Being independent of Microsoft is great, but only if you can make money at the same time.

The biggest "Why not?" for IBM has to be the amount of pride it would have to swallow. Imagine the finger-pointing when IBMers realize they could already have had OS/2 on RISC today had things gone differently during the Armonk-Redmond divorce proceedings of the past.

EYE ON THE MARKET

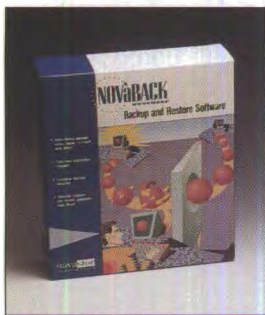
The real question one has to ask is "What's in it for Microsoft?" Bill Gates probably would not allow IBM to put OS/2 on NT because it would acknowledge that OS/2 is a serious competitor. However, a deal like this could allow the folks in Redmond to lock in a large number of NT licenses for IBM-produced systems.

Toward a Workplace NT

The current WOS is certainly not a bad architecture. Technically it is well thought out. But it will take longer to achieve and may not be as cross-platform or as widely accepted as NT. With NT so much further along than WOS on x86 and PowerPC, and so few native, portable OS/2 applications available, it seems likely that WOS as we know it is destined to be another niche OS.

Distasteful as it may seem, especially coming from an OS/2 supporter, there is a certain symmetry and merit to Workplace NT. But don't hold your breath—IBM PSP appears determined to go its own way in producing WOS. Let's just hope that IBM comes up with the right moves to get native OS/2 applications developed for OS/2 2.x. Otherwise WOS won't matter. ♦

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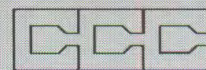
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The Backup Dilemma

BackMaster for OS/2 proved to be one company's answer.

BY CRAIG S. STEVENSON

What would you do if the hard drive in your computer died today? Are you prepared—or have you always thought that it would never happen to you?

Most computer users seem to think that their hard drives will never fail ... until disaster strikes. The old saw is right: there *are* only two types of hard drives, those that have failed and those that will.

Nor does it take a catastrophic drive failure to cause a lot of grief. A program that goes haywire or a virus that trashes the file allocation table creates at least some inconvenience, and potentially causes the loss of valuable data as well.

The best solution to the problem is prevention, in the form of reliable backup files. Because of the extensive number of changing files at our company, weekly backups are an integral part of our business plan. But a back up strategy hasn't been easy to come by. Our IS environment consists of two computers connected to a Novell file server via thin Ethernet. The file server has two 245mb hard drives, configured as two separate volumes. These volumes are mapped as drives N: and O: on the network workstations.

One of the workstations is a 386DX/40 with 8mb of RAM, running a combination of DOS, DESQview, and Windows. The other workstation is a 486DX/40 with 16mb of RAM, running OS/2 v 2.1. Each of the workstations has a local 245mb hard drive.

We use a wide variety of software, including an accounting package, word processor, spreadsheet, communications package, and a myriad of utilities.

Until recently, the DOS-based 386DX/40 had the only tape drive, an Iomega Tape250. Each week, this machine was dedicated to the task of performing the tape backup of the local drive and the two network file server drives. Backing up approximately 750 megabytes of data takes a long time, even when using a tape drive. During this time, the machine could not be used for any other purpose, leading to lost productivity.

To safeguard the data on the OS/2 machine, several key sub-directories and files were backed up to the O: drive on the server, but this left less hard drive space available on the network for our other applications. Since the backup of the OS/2 machine was only a partial backup, many key files were not available when needed. (Of course, this only became apparent after they *were* needed.)

To improve the situation, I purchased a Colorado Jumbo 250 tape drive and installed it in the OS/2 machine. Like many new converts to OS/2, I first tried sev-

eral of the more familiar DOS-based backup programs running in a DOS session under OS/2. Central Point Backup version 7.2 and Norton Backup version 2.2 would not recognize the high-speed controller attached to my tape drive, although both would back up the local drive to the network server with varying degrees of speed and success. The tape backup software provided by Colorado worked quite well in an OS/2 DOS session. However, since all three of these backup programs were DOS-based, they consumed an inordinate amount of CPU time when performing the backup, and had no idea how to handle the extended attributes in the High Performance File System (HPFS) used by OS/2.

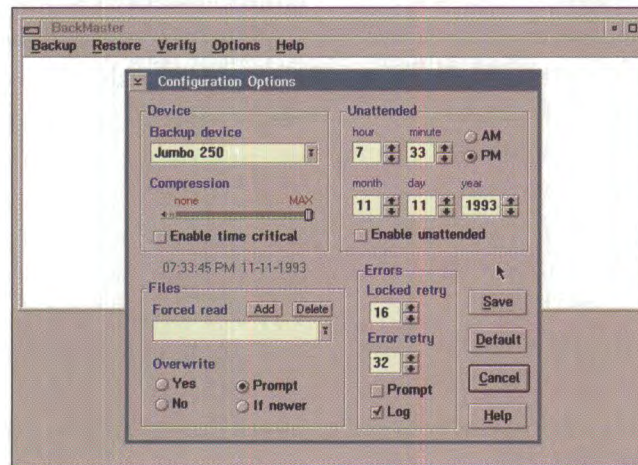


Figure 1.

HANDS ON

In the last year, several OS/2-based backup programs have appeared on the market. Many target SCSI-based backup devices rather than the more prevalent (and economical) floppy-controller-based tape drives. The one we focused on is BackMaster v 1.00, from MSR Development in Nacogdoches, Texas. BackMaster is a multithreaded 32-bit OS/2 tape backup program designed to use the full multitasking capabilities of OS/2. It supports a wide variety of QIC-40 and QIC-80 tape drives, including Archive XL-80, Colorado Jumbo 120 and 250, Iomega Tape250, Mountain Filesafe 4000 and 8000, Summit SE120 and SE250, and Generic QIC-40 and QIC-80 drives. This list covers most of the common tape drives, and more are being added.

Since BackMaster did not support my Colorado FC-10 high-speed tape controller card, I attached the tape drive to the floppy controller via a "Y" cable supplied with the tape drive, and BackMaster worked fine. Installing and setting up BackMaster itself was a snap. The installation program updated the CONFIG.SYS file, adding a device driver called FTDVR.SYS.

Variable Compression

Most of the program configuration options are set using the screen shown in Figure 1. Note that the amount of software data compression can be varied in extremely small steps, from none to max, by using the Compression slider. Many other backup programs offer compression level adjustments in only a few distinct increments. BackMaster uses compression technology from Stac Electronics, the maker of Stacker, and MSR claims average data compression ratios of 2:1.

Tape backup is most efficient when the tape is kept "streaming"—moving steadily past the recording heads. In our testing environment, BackMaster worked best with maximum compression on the local hard drive, and no compression on the network drives—our network could not transfer data quickly enough to keep the tape streaming with software data compression enabled.

Performance in a multitasking system such as OS/2 will also vary with the system load. When the "Enable time critical" check box is selected, BackMaster receives higher priority than other processes competing for CPU time. This improves the speed and reliability of the backup, but may slow down other applications running at the same time. I generally leave this box unchecked, unless I won't be using the machine while the backup is running.

After configuration, simply select a drive to back up, enter a name for the backup volume, and select the directories and/or files

that should be included in the backup. The entire selection process is extremely flexible and fast, requiring no keyboard access. I am a touch-typist, and prefer to either use the keyboard, or the mouse exclusively. Going back and forth between the two really slows things down. With BackMaster, pressing the left mouse button selects the sub-directory, and pressing the right mouse button brings up the pop-up menu.

Look Ma, No Hands!

OS/2's best multitasking-related backup feature is its scheduler support, which allows unattended backups. I don't like the extra TSRs required by DOS scheduler programs. And even if you use them, you still must stop your work while the backup runs. Under the Windows environment, the situation is considerably worse—the backup performance impact is so great that the machine becomes totally unresponsive.

BackMaster's unattended system running under OS/2 works very well. Simply select the directories and/or files that you want to back up, set the date and time for the backup to start, click the Enable unattended check box, make sure a tape is in the drive, minimize BackMaster, and walk away. That's it. When the right time arrives, BackMaster comes to life, backs up the data you selected, and goes back into hibernation. This system is ideal for programmers and others who want an automatic, incremental backup of files that have changed during the day. The backup can be completed before your employees quit for the day, and they can finish their work while the backup proceeds in the background.

BackMaster also handles in-use files elegantly. Some backup programs force a user to manually intervene when a file cannot be read. (This can occur when a file is in use by another process, either locally or on a network drive.) BackMaster can log the errors, but does not require a key-press or mouse click for every unreadable file. Users can set the number of times that BackMaster will retry reading a file.

Formatting Tapes

Backup tapes can be purchased blank or pre-formatted. Blank tapes are less expensive, but formatting them takes about two hours. With BackMaster, formatting tapes can be done in the background with virtually no impact on performance. During this background formatting, my system monitoring program reported a CPU load of 0 percent. True to this reported value, the machine was fully usable while the tape was whirring away in the background.

HANDS ON

Of course, background operation is not limited to formatting tapes. During the backup process, the CPU Load varied from about 25 percent to as high as 85 percent, depending on the amount of disk and tape drive activity. The average was about 50 percent, which means the machine was available for other uses. In one case, I called my favorite bulletin board system, downloaded a file, and extracted the program files from the ZIP file into a network subdirectory. The backup never skipped a beat.

In another test, I opened the Lotus Ami Pro word processor in a WIN-OS/2 session. Since Windows applications are notoriously resource hungry, this was a good real-world test of the capabilities of OS/2 and BackMaster. While the CPU load rose to 62 percent, I could still use Ami Pro effectively. At times, there was a slight jerkiness when typing, but nothing that I found objectionable. In fact, I was tickled that I was able to do any productive work at all during this backup process that had previously required a dedicated machine.

Once BackMaster completes the backup, you can verify that the files backed up on tape match the files on the hard drive.

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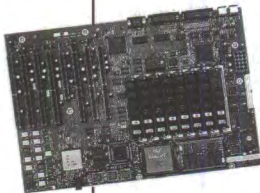
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HANDS ON

This gives an extra level of assurance that the files on the tape can be restored if necessary. The first time that any backup program is used, the backup should be verified to insure that it is reliable. Fortunately, operating in the background, the compare does not hinder operations too much—we recommend you use it regularly. Unfortunately, BackMaster does not include an automatic verify after backup, so you must run it manually. (This oversight is scheduled for correction in the next release of BackMaster.)

The restore process is similar to the backup procedure, using the same selection window. In addition to the selection criteria, BackMaster offers several options that selectively overwrite or skip existing files. BackMaster also includes a text-based restore utility, called BMREST, that will run a restore procedure without first installing the entire set of OS/2 disks (a real time-saver in the event of a catastrophic failure of the hard disk or operating system partition).

Additional BackMaster utilities quick-erase, re-tension, and retrieve information from a tape. One minor inconvenience: BackMaster cannot automatically quick-erase a tape before starting the backup procedure. I always prefer to have my tapes completely erased before starting a backup, and with BackMaster this is a manual process.

As we were going to press, MSR Development posted a version 1.01 update to BackMaster on their bulletin board system. The update fixes several problems, including some restore bugs. The FTDVR.SYS has also been updated several times to fix various problems.

The Future of BackMaster

I was recently given the opportunity to test a pre-beta copy of the new FTDVR.SYS driver, which supports high-speed tape controller cards. Surprisingly, not only was the Colorado FC-10 card supported, but also the Iomega IHA-10. According to the sparse README file that came with the driver, most cards based on the 82077 chip are supported, including the 2.88mb floppy controllers! This new driver should make BackMaster compatible with the vast majority of standard and high-speed tape/floppy controllers. Command line switches are used to specify the DMA channel, interrupt request line, I/O port, controller card type, and transfer rate.

The performance of this new driver is outstanding, allowing high-speed (1 megabit per second) transfers to the tape drive.

Unfortunately, CPU utilization also rises dramatically, making the system sluggish. According to an MSR Development technician, future versions of BackMaster will likely replace the command line switches for FTDVR.SYS by employing a configuration screen within BackMaster itself. This should allow the transfer rate to be raised or lowered, depending on whether the machine will be used for other tasks during the backup process.

Additional features scheduled for inclusion in the next version include a directory function (a glaring omission from the current version—you cannot simply view the directory of a tape), an exclude filter (e.g. do not process *.ZIP files), and high-speed controller support.

The Big Picture

The ultimate solution to the backup problem is to make it as quick and transparent as possible. Reliable background operation is a necessity, so that the operator is available if needed, but does not have to intervene when everything goes smoothly. OS/2 version 2.1, combined with a 32-bit OS/2 tape backup program such as BackMaster, provides true background operation without sacrificing reliability or requiring a dedicated machine. Unattended, automatic operation is also possible, without loading potentially troublesome TSRs.

With the latest generation of products, performing tape backups has changed from a major aggravation to a minor inconvenience. As a result, your staff is more likely to perform backups regularly and keep them up to date, and your data is much more secure. If you're looking for a cost-effective, low-capacity backup solution, you should set OS/2 and BackMaster to the task. ♦

Craig Stevenson is the president of Stevenson Technical Services, Inc., which provides programming, networking, and systems integration for businesses in north-central Minnesota.

At a Glance

BackMaster for OS/2

MSR Development

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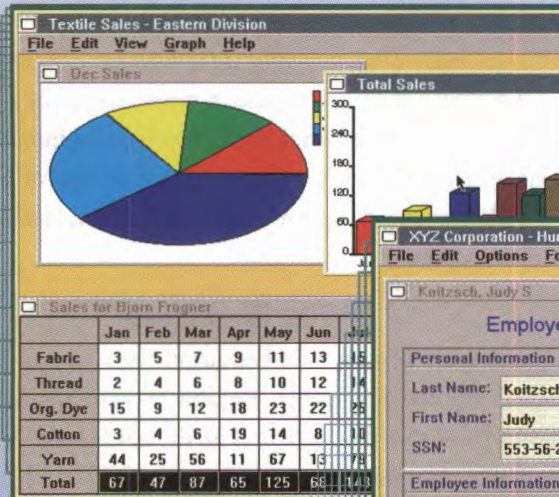
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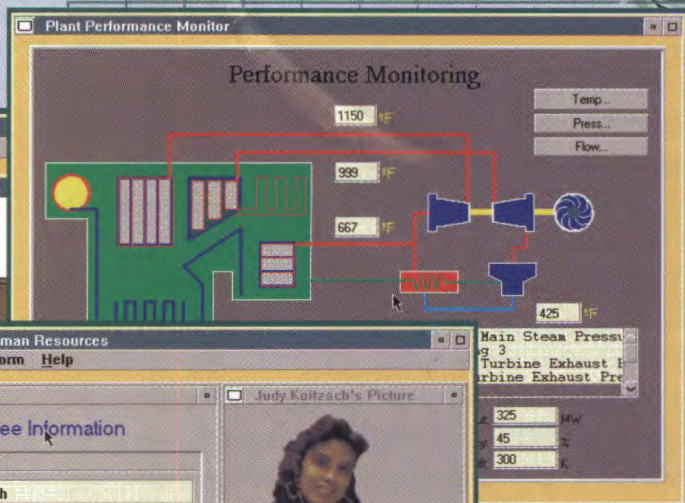
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Software for OS/2

Taking Charge

CA's project management software lets you run even the most complex projects, rather than vice versa.

BY HERB TYSON

If you've never used any kind of project management software, you may be in for a pleasant surprise when you see CA-SuperProject from Computer Associates. SuperProject is an amazingly rich, robust, and diverse package for managing virtually all aspects of a wide variety of projects. It has something to offer every member of the work team.

The \$649 price tag on SuperProject sounds hefty. However, it can pay for itself by improving the efficiency of your resource management, and by showing your supervisors or clients that you are serious about the efficient management of project resources.

Applications

CA-SuperProject is versatile and adapts well to a diverse range of project types, including research projects, construction jobs, and application programming, among others. It also lends itself to activities you might not ordinarily consider projects, such as moving an office from one location to another, acquiring a new computer system, or tracking almost any kind of budgeted undertaking.

A surprising number of managers don't use any dedicated project management software at all. Instead, most projects are planned on spreadsheets. For small projects, the spreadsheet approach works well enough, and there may be no great incentive for moving to dedicated software. As projects multiply and become larger, however, the limitations of the spreadsheet approach quickly become apparent, especially as you find yourself trying to hide, copy, and move columns and rows of data around to produce reports. Some managers find themselves spending more time writing spreadsheet macros than managing projects.

SuperProject provides useful planning tools for all phases of a project, from proposal through post-project evaluation (sometimes called *management by hindsight*). There's something for

everyone involved in the project and its enterprise support, including task managers, project staff, and the bookkeeper. The division director can tell at a glance who's doing what, providing a useful tool for assessing overall staffing requirements. Support staff—word processing, copying, and production staff—also can use SuperProject to see when and how much of their time and resources will be needed, thus facilitating planning and managing competing deadlines.

Installation

Installing SuperProject for OS/2 is straightforward once you understand the implications of the various choices. The full installation requires about 6.5mb of disk space. If you already have CA-Realizer, you can knock off about 2.5 megabytes from the total. If you aren't familiar with SuperProject, you will want to install Realizer-based Project Manager Assistant. The PM Assistant (no relationship to presentation manager) is a resident tool that provides information and automated procedures (macros) for using SuperProject. Other installation options include modules for converting from other project management file formats.

A rapidly emerging standard test for OS/2 applications is whether or not you can switch to other tasks while an installation routine is running. Some poorly written installation programs don't let you switch away. SuperProject does, popping up a diskette change window when it's time to insert the next diskette.

Compatibility

SuperProject comes with tools for converting from ABT Project Manager's Workbench FIX files and Microsoft Project Exchange (MPX) files. The package also provides export and import filters for CSV (comma separated values), SYLK, WK1, fixed ASCII, dBASE III, CA-Tellaplan, CA-SuperCalc, and Excel files.

Finding the export and import filters proved a bit formidable, largely because the Help file misinforms you about their location. The FIX and MPX converters appear in the Run menu. The other export and import tools, however, are buried in the File menu, under the unlikely sounding Inter Project Connections submenu. Once they've been found, however, importing and exporting is fairly straightforward, although a little more information about the target format would be helpful in some cases.

When using the Export feature to export to Excel, for example, SuperProject doesn't say which version of Excel the export will yield. The resulting files imported into Excel 3.0 for OS/2, but not uneventfully. Excel warned of possible data loss for each import, although no data loss was evident. On the other hand, the files created in Lotus's classic WK1 format were directly usable by 1-2-3 Version 2 for OS/2 without a hitch, and without any error messages.

The OS/2 and Windows versions of SuperProject both use the identical file formats, as do the versions for VAX/VMS, DOS, and Unix. Not only can you interchange files among the different versions, but Windows and OS/2 users can access the same (locked) project files at the same time. This is especially useful in the mixed Windows and OS/2 office networks that seem to typify many potential SuperProject users. Beginning with version 3.1, however, the non-GUI versions of SuperProject will no longer maintain binary file compatibility.

Different 7 Views

You can think of SuperProject as a multidimensional spreadsheet or outline, with Task, Resource, Date, and Account as the available dimensions. Because tracking this amount of cross-refer-

enced information could become overwhelming, you can limit the amount of detail shown to any combination of task headings, project accounts, and resource assignments. This lets you glean an uncluttered view from any angle you like. One great practical application is using the resource view to identify and eliminate resource over-commitment problems and timing conflicts. In

Figure 1, the area above the eight-hour line in the bottom of the chart shows that a worker's time was over-budgeted.

SuperProject also lets you view work breakdown and PERT charts. As shown in Figure 2, you can use the PERT view to establish time links between project elements. SuperProject also features Gantt charts and histograms for various project resources. Printout can take the form of reports or wall charts.

Observations

SuperProject is moderately intuitive, but some aspects can be confusing, especially if you aren't familiar with project management terminology. The Windows-only tutorial is somewhat helpful in climbing a fairly difficult learning curve, and needs to be included on the OS/2 side of SuperProject. Serious users of SuperProject should install the Windows ver-

sion, run the tutorial, and then delete the Windows version once they're comfortable with SuperProject.

(Jean-Luc Valente, marketing product manager for CA, told *OS/2 Professional* that the tutorial was created using a Windows-only product called Bridge. CA is re-writing the tutorial with Realizer and it will be available for both the OS/2 and Windows versions of SuperProject version 3.1.)

A few of SuperProject's context-sensitive functions can lead to some confusion. When using SuperProject, it pays to constantly remind yourself that some functions are hidden in some modes.

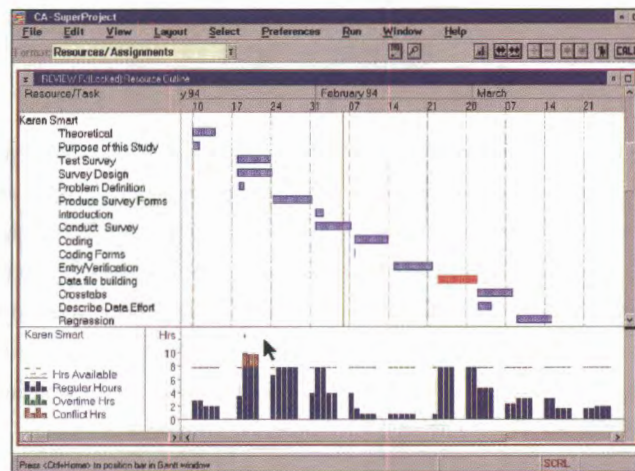


Figure 1.

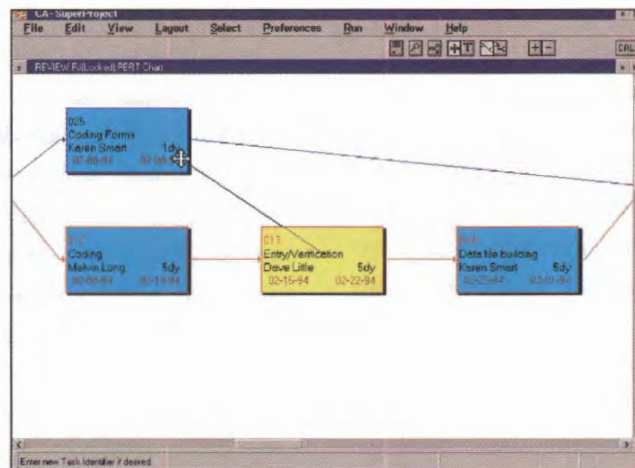


Figure 2.

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In particular, menus are shortened and a number of options are hidden in the default Beginner mode.

A big plus is SuperProject's snappy performance. Unlike some other packages that have both Windows and OS/2 versions, SuperProject for OS/2 doesn't seem to suffer any performance penalties. All operations in the OS/2 version were as fast, if not faster, than in the Windows version running under WIN-OS/2. Starting SuperProject from the OS/2 desktop or from the WIN-OS/2 Program Manager each took about nine seconds on the 486/33, 16mb (RAM) system used for this review. In both cases, Word for Windows 6, Alarms, and Collage PM were already running. Loading a project file took less than a second.

If you use the Realizer-based tools, such as PM Assistant, you will notice a slowdown in both OS/2 and Windows versions. That's largely because the default configuration uses REALIZER.EXE to load uncompiled RLZ files. If you have the full version of Realizer, however, you can speed these up considerably by compiling the RLZ files to EXE files, and setting SuperProject to run the EXE instead of the RLZ versions.

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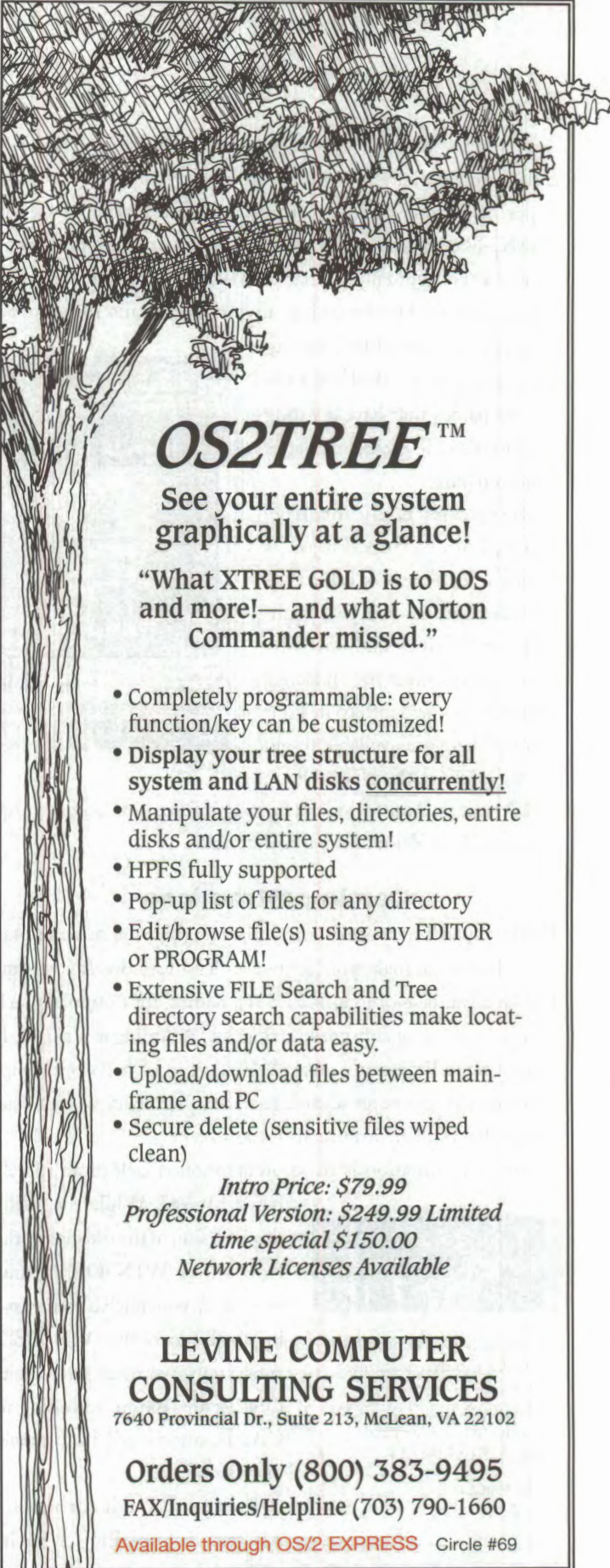
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You aren't limited, by the way, to using just the Realizer enhancements that come packaged with SuperProject. One of SuperProject's strongest features is its integration with the BASIC-like Realizer as a kind of macro and programming environment (conceptually similar to Microsoft's Visual Basic for Applications). While taking advantage of this integration requires considerable learning time, it may be worth the hurdles for companies that have a strong need for flexible project management software.

Despite its fairly intuitive design, learning SuperProject is by no means a piece of cake. Project management can be fraught with complexities and any software that can meet the challenge must have some depth to it. Four kinds of help are available to get you up to speed: the Help system, PM Assistant, Assist Mode (a floating information box; see Figure 3), and the Windows-based Tutorial.

Coming Attractions

While SuperProject is extremely flexible, there are some limitations that might make you hesitate, at least for now. If you want to take advantage of long HPFS file names, for example, you'll have to wait—probably until version 3.1, according to Valente. If you use SuperProject in a mixed Windows and OS/2 workgroup, however, that can be an advantage since you probably want to use names that both environments recognize.

Another limitation is the aforementioned lack of an OS/2-based tutorial. While the Win-

dows version of the tutorial works fine under WIN-OS/2, that won't help you much if you're trying to eliminate the WIN-OS/2 subsystem overhead from your OS/2 setup. Again, according to CA, the tutorial will be available in version 3.1.

Another demerit for version 3.0 goes to SuperProject for its

lack of DDE (Dynamic Data Exchange) and Paste Link support. If you require full interactive integration of your project documents, this can be a fatal flaw for the current OS/2 version. According to CA, DDE and Paste Link are slated for inclusion in version 3.1 or later.

Another much-needed feature is an Undo option. Even a single-level Undo would be helpful in recovering from those "What if..." experiments that project managers and task managers sometimes like to perform. A multi-level Undo would be even better. Valente told *OS/2 Professional* that Undo is a much requested feature and is on the feature list for version 3.1.

Bottom Line

SuperProject is a powerful tool for helping companies cope with the perils of project management. No government contractor should be without such a tool, and managers in any field likely would reap its rewards. If you're presently using spreadsheets to manage project information, this project management software can easily pay for itself by saving both time and costly errors. SuperProject is especially suited for companies that use OS/2 and Windows in a mixed environment.

A few rough edges remain, however. Major omissions should be alleviated by the release of version 3.1. However, if the missing features would leave your mission in a critical state, nobody would blame you for dragging your feet just to make sure they arrive as promised. Given CA's toning down of promotions for the OS/2 versions of CA-Compete and CA-Textor, a little wariness might not be a bad idea. Remember WordPerfect 6 for OS/2 is fast becoming the OS/2 user's version of Remember the Maine.

If you need good, solid, project management software right now, however, SuperProject provides good value, with the promise of more to come. ♦

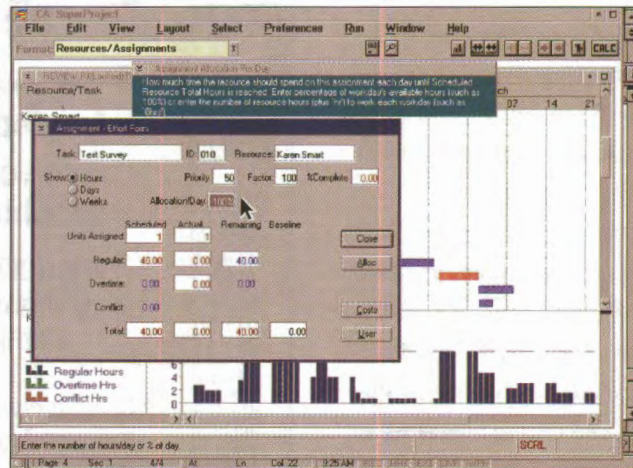


Figure 3.

SuperProject 3.0 for Microsoft Windows and IBM OS/2

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Computer Community Concerned Over Crypto Connectivity Crunch

Or, do you want the government to have the key to
decode your secure communications?

BY WAYNE RASH JR.

Put yourself in the place of a manager in a multinational corporation. You need to send some sensitive financial information from your office in Frankfurt to your bankers in Geneva. You'd like to send the message electronically, using cc:Mail, and you want to make sure that your proprietary information is kept that way.

After a little checking, you determine that you have three choices. The first is to use a substandard form of data encryption that nearly anyone with a computer, a little time, and a little experience can crack. The second is to use a hardware encryption standard to which the U.S. government holds a master key that it can use any time it likes. The third choice is to find another e-mail package, one that doesn't suffer from the first two problems. Which would you do?

Like most people, you'd choose option three—and that has software companies worried. The problem isn't that Lotus doesn't know how to make it possible for cc:Mail to encrypt messages. It does. The problem is that the United States government won't allow software companies in the U.S. to export sophisticated encryption software. The result? Companies overseas are looking elsewhere to buy the software they need to protect their privacy and their proprietary business information.

There are plenty of other places to look. Douglas Miller, the government affairs representative for the Software Publishers Association in Washington, estimates there are well over 100 foreign products that already have the ability to encrypt information using the Data Encryption Standard. DES is one of the means of encryption that the Clinton administration has decided cannot be exported in U.S.-made software. That's pointless, Miller maintains. "You can get DES on the Internet."

WordPerfect Corporation Executive Vice President R. Duff

Thompson says that intelligence agencies such as the National Security Agency are involved in the decision-making process, and have been pushing the administration to prevent the export of encryption technology. "We're simply puzzled by the repeated efforts of the NSA on this point," Thompson says. Thompson likens the administration's approach to locking the barn after the livestock have escaped.

The Solution

The government has its own ideas for a solution to the woes of companies trying to encrypt their information: the Clipper chip. Clipper is a government code name for a hardware encryption solution that requires a key to encrypt information and a key on the other end to decrypt it. While most encryption systems used in data communications work this way, the difference with Clipper is that the government would hold the master key, enabling an agency to read encrypted information as it moves on a network, or encrypted voices as they travel down a phone line.

To address the concerns of civil libertarians, the administration has promised to keep the key in escrow. Unfortunately, the commitment to the escrow accounts that would hold the key will not have the force of law. Thus, there are no penalties if a government agency misuses a key, or passes it on to another agency. This possibility makes industry and public interest organizations as well as civil liberties groups understandably nervous.

One group that was vocal in trying to prevent both the controls on exports and the Clipper solution to them was the Business Software Alliance in Washington. BSA sent a letter signed by eight CEOs of major software companies to Vice President Al Gore in early February.

The letter, signed by Lotus CEO Jim Manzi, WordPerfect

CEO Adrian Rietveid, Microsoft's Bill Gates, Ray Noorda of Novell, Carol Bartz of Autodesk, Aldus CEO Paul Brainerd, and Intergraph's Jim Meadlock, attempted to convince the administration to drop its plans to ban exports of encryption software and to start requiring Clipper for government users. Unfortunately, the administration ignored their pleas, and a few days after the letter arrived at the White House, the administration announced that export controls would continue and the administration would embrace Clipper.

The Fight is Joined

Daniel J. Weitzner, staff counsel for the Electronic Frontier

Saying Your Piece to the Government

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or

vice.president@whitehouse.gov

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clipper.petition@cpsr.org

Make sure you include the words "I oppose Clipper" in the body of the e-mail. As far as we've been able to determine, there isn't any group on the Internet collecting responses in support of Clipper.

Foundation in Washington, says that his organization is opposing the government's encryption initiative because it would erode constitutional privacy protections. He notes that EFF's position is that the only people at risk from the administration's plan are law-abiding citizens and companies.

"We don't believe there's any reason to trust [the Clipper] algorithm," Weitzner says. "The key escrow portion of the proposal is outrageous in that the government would be keeping the keys to privacy," he adds.

Weitzner questions whether the government can be trusted with access to such sensitive information. He notes that the Rev. Martin Luther King Jr. was illegally wiretapped, and that the presidency itself was involved in illegal information-gathering during the Watergate scandal. To make matters worse, Weitzner adds. "There is no legal protection for people in the event that the keys are improperly disclosed."

Many in the industry, including Weitzner, object that because the encryption keys can't be changed (if they were, a government agency couldn't decrypt communications when it wanted to) the result is not only a potential loss of privacy, but also bad security. Other objections include a lack of flexibility that prevents the Clipper's use in much consumer hardware (the chip in its current format is too large for a pocket cellular phone, for example), and the fact that for a properly designed system to remain secure, keys must be changed frequently—a precaution prevented by the administration's proposal.

Others Weigh In

Two other groups expressing serious reservations about the constitutionality of the administration's proposals are the American Civil Liberties Union and Computer Professionals for Social Responsibility (CPSR). The ACLU, in a letter to the National Institute of Standards and Technology that was made available to *OS/2 Professional*, notes, "The administration describes the initiative as an effort to protect individual privacy, when in fact its sole purpose is to make sure that all communications are accessible to the government and cannot remain private outside the scope of government decryption."

The ACLU declares that it believes the export controls proposed by the government are unconstitutional because the cryptography software is a form of speech protected by the Constitution. "[W]e are distressed that the government appears to take the position that because such speech is encoded onto a comput-

CONNECTIVITY

er disk, it somehow loses First Amendment protection, and can be regulated in the same way as weapons hardware." The letter goes on to note that the government is even trying to control such software when it exists in the public domain.

Doing Something About the Problem

The ACLU and the EFF are both trying to head off the administration's efforts by getting them overturned in Congress. At press time, there was no indication which side would prevail, although some observers suggested that the best that could be expected would be a compromise that would eliminate export controls but still support Clipper. CPSR isn't very happy about that possibility, and has begun working to build a public outcry that will convince Congress and the administration to abandon both the export controls and the Clipper initiative.

According to Marc Rotenberg, director of CPSR, the congressional compromise "Still leaves too much latitude for the NSA to conduct foreign policy." That's the reason Rotenberg has launched an Internet petition to collect responses from network users who don't want the administration to pursue its current course.

According to Rotenberg, the organization had already collected more than 30,000 responses by the end of February. "We're getting over 3,000 responses per day."

Despite the responses, the parties fighting the administration proposals agree it will be a difficult fight. The reasons given by the administration for wanting the export controls and the Clipper technology—fear that U.S. intelligence services might miss a terrorist attack or a major drug deal—fit well with the current anti-crime mood in Washington. Equally important, the politically powerful intelligence community has made this a priority in its legislative program for several years, and has had the consistent support of the U.S. Justice Department during two administrations.

Are the export controls as bad as the software industry claims they are? Will Clipper technology erode freedom for U.S. citizens? These questions may never be answered completely, and in any case, the answer depends on who you ask. All sides do agree on one thing, however, and that's that 1994 is the year when the government will decide which answer *it* likes the best. ♦

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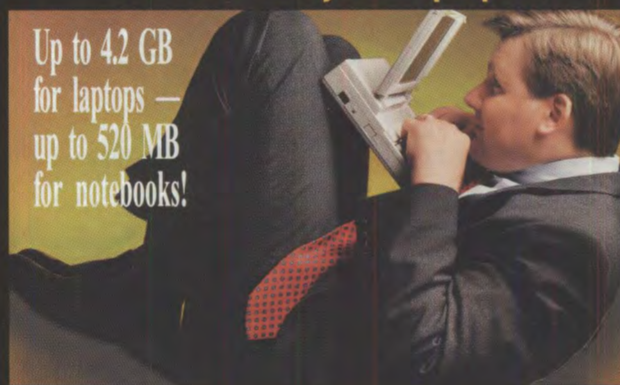
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Circle #182

SCOOPS

Deal leads to OCR/translation package

As a result of a deal it has signed with Recognita Corp. America, Globalink, Inc. will ship its Power Translator for OS/2 bundled with Recognita's OCR software for OS/2. The bundling agreement should save buyers an estimated \$300.

The translation software

enables users to convert text to and from English, Spanish, French, and German. Adding optical character recognition software will give users a more complete translation package by allowing documents to be scanned, converted to text, and then translated, essentially at the touch of a button.

Translator includes an assortment of subject-specific dictionaries ranging from aviation/industrial to legal to beer brewing.

Recognita also is currently shipping the OS/2 version of its optical character recognition software as a standalone product. Recognita Plus 2.0

for OS/2, which can recognize text in 80 different languages, is priced at \$995.

Initial pricing for the OCR/translation bundle is set for \$1,195 for a five-user license, but sources indicate that a price drop may be in the offing.

New Products

Catch the shuttle

Computer Connections America is shipping a new line of portable tape storage and backup devices dubbed Shuttles. The three DAT Shuttle portable models feature parallel and SCSI ports that allow users to port data across multiple platforms including OS/2, Windows, and NetWare. Datashuttle tape drives are available in a range of storage capacities and prices. Prices start at \$1,950. Computer Connections America, 19A Crosby Drive, Bedford, MA 01730, (617) 271-0444, fax (617) 271-0873.

Rose of a tool

Rational, a designer of tools for object-oriented software development, is now shipping Rational Rose 2.0. The prod-



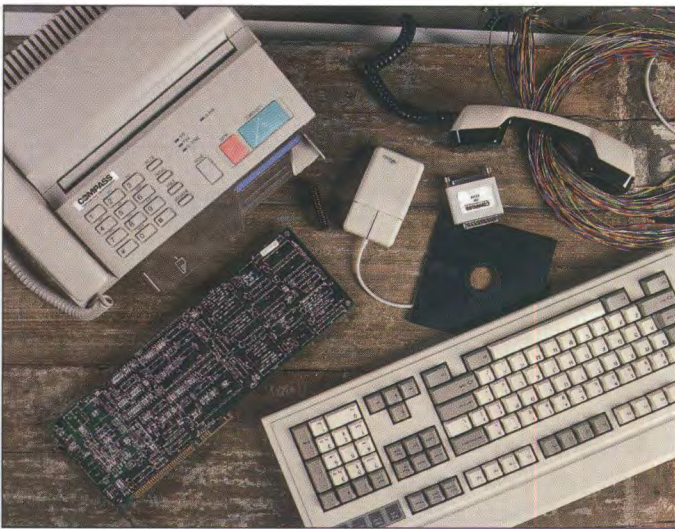
uct speeds object-oriented production by allowing developers to visualize the architecture of an application under development. Rational Rose enables developers to create a representation of the software architecture that can be stored for future use. For PCs running Windows and OS/2, the cost is \$749; for Sun workstations the price is \$3,995.

Rational, 2800 San Tomas Expressway, Santa Clara, CA 95051-0951, (800) 767-3237, fax (408) 496-3636.

What's it doin' now?

BonAmi Software Corp. is shipping CPU Monitor Plus version 2.3 for OS/2. Utilizing real-time monitoring of CPU, RAM, disk, and COM port activity, Monitor Plus graphi-

cally displays OS/2 resource utilization for DOS, Windows, and OS/2 processes. The utility also enables users to stop programs, monitor, suspend, and change execution priorities. List price is \$129.95. BonAmi Software Corporation, 60 Thoreau Street, Suite 219, Concord, MA 01742, (508) 371-1997, fax (508) 371-2333.



From a distance

Compass Technology, Inc. has just released Compass Enhanced Office (CEO), a PC-based voice and fax information processing system. CEO enables users to manage incoming phone and fax information regardless of geographical separation, differences in time zones, or busy phone and fax lines. The product provides automated voice mail, audiotex, and fax networking solutions designed to exploit a 32-bit operating system. CEO starts at \$10,000. Compass Technology, Inc., Live Oak Office Center, 2201 Cantu Court, #116, Sarasota, FL 34232, (813) 371-8000, fax (813) 377-5600.

Easy dozen

J&J Computer Consulting has released J&J Utilities for OS/2, a collection of 12 utilities designed to make life at the OS/2 or DOS command line a little easier. The product enables users to designate "critical" priorities, perform deletions on all files except

those specified, and to search files for specific text strings. Eight of the commands include DOS versions that will run from within a DOS window under OS/2, allowing users to access the utilities from any OS/2 session. Installation is a one disk process. J&J Utilities costs \$34.95. J&J Computer Consulting, 2321 West Seventh Place, Stillwater, OK 74074, (405) 624-1472, fax (405) 743-2613.

REXX design tool

Gpf Systems, Inc. has shipped GpfRexx, its interface design tool for PM applications. The product allows OS/2 users to design, test, and generate

graphical user interfaces for programming in REXX. The tool takes a visual approach to designing through a point-and-click and pull-down menu method that the company says will enable even the inexperienced developer to design applications more efficiently. GpfRexx costs \$247.50. Gpf Systems, Inc., 30 Falls Road, Moodus, CT 06469-0414, (203) 873-3300, fax (203) 873-3302.

Working faxes

SofNet is currently shipping two new products, FaxWorks Pro LAN and FaxWorks Pro Server for OS/2, DOS, and Windows. The LAN product is designed for small to medium-sized networks and does not require a dedicated fax server. FaxWorks features FaxTracker, a tool for managing document storage, as well as phone books, logs, and file cabinets that can be shared or used individually.

The FaxWorks Pro Server is a multi-line fax server for medium to large-sized sites with heavy inbound and outbound fax traffic. The server enables users to send and receive faxes from e-mail

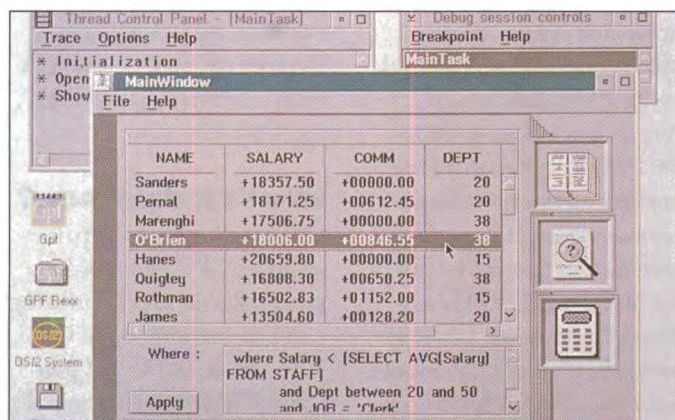
applications and also offers optical character recognition, thereby enabling users to scan documents directly in. FaxWorks Pro LAN starts at \$199 for two users, and FaxWorks Pro Server begins at \$799 for 10 users. SofNet, 1110 Northchase Parkway, Suite 150, Marietta, GA 30067, (800) 329-9675, fax (404) 984-9956.

Oh, BABY!

California Software Products, Inc. is now shipping version 1.41 of its RPG400 software system. BABY/4XX v. 1.41 is designed to downsize AS/400 native code to the PC where it can be recompiled and used on a network, in a multi-user environment, or by a single user. Running under OS/2, BABY/4XX can integrate AS/400 and DOS, Windows, and OS/2 applications. Version 1.41 is available for \$3,500 for new purchasers. California Software Products, Inc., 525 North Cabrillo Park Drive, Santa Ana, CA 92701-5017, (800)841-1532, fax (714) 558-9341.

Voice Notes

Simpact Associates is currently shipping REMARK! OS/2 LanClient. REMARK! is a workgroup product designed to run in tandem with Lotus Notes, enabling users to create, play, and manage voice information as part of their electronic documents. The voice data is entered via telephone. The voice recognition software package will eventually support other OS/2 applications such as DeScribe and



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Lotus 1-2-3, Freelance, and Ami Pro. REMARK! sells for \$2,850 for 25-50 users. Sim-pact Associates, Inc., 9210 Sky Park Court, San Diego, CA 92123, (619) 565-1865, ext. 1220, fax (619) 565-4112.

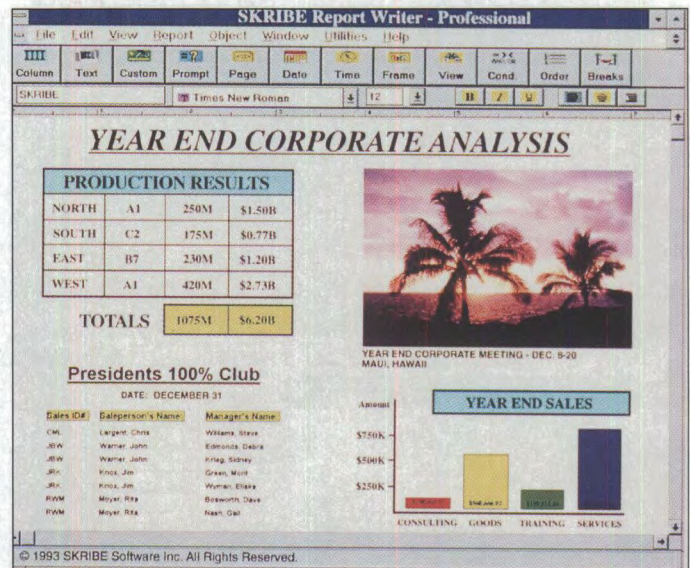
LAN faxing

RightFax has released version 3.5 of its fax server software for multiplatform LANs, including OS/2, DOS, and Windows. The new software features support for binary file transfers and optical character recognition text conversion. RightFax also includes drag-and-drop file manipulation and e-mail fax capability. With the BFT format, users can send files via fax as editable documents. The cost is \$995 for the server software

(license per channel), \$1,195 for the OCR module, and \$995 for the e-mail gateway. RightFax, 4400 East Broadway, Suite 312, Tucson, AZ 85711, (602) 327-1357, fax (602) 321 7456.

Report on Scribe

Scribe Software, Inc. is currently offering Scribe Report Writer 4.0, a tool used to create database reports. The product is object-oriented and enables users to generate reports and graphs without the need for specific programming knowledge. The WYSIWIG interface features tool bars, font bars, choice menus, and on-line help. Scribe can integrate with existing applications or function as a stand-alone product on a worksta-



tion, or network, or in a client/server environment.

Scribe Report Writer 4.0 is available for SQL- and ODBC-compatible databases and operating systems including OS/2, DOS, and Unix.

Pricing starts at \$2,495 for 1-50 users, with site licensing available. Scribe Software, Inc., 1533 N. Woodward Ave., Suite 150, Bloomfield Hills, MI 48304, (313) 645-2410, fax (313) 647-0737.

News

Big splash for OS/2 Express

Now in its second month, the OS/2 Express software catalogue has met with an enthusiastic response. Launched in last month's issue of this magazine, OS/2 Express is designed to provide a timely and competitive source for OS/2 applications. Other catalogues offer OS/2 products as well, but *OS/2 Professional* Publisher Edwin Black says that "the unique value of OS/2 Express is the ability to update its content on a monthly basis." He added that the catalogue will provide "the most current OS/2 software order-

ing system in the world and will also increase the sale of OS/2 software."

OS/2 Express is located in the front of this magazine. To order, just dial, toll-free, (800)-OS2-KWIK.

DB2/2 goes Novell

IBM's database server, DB2/2, will soon be available for the Novell environment, as first reported in *OS/2 Week*. While no release date has been set, sources indicate that the product should hit the market sometime in the second quarter.

Since Novell's NetWare is the most commonly found

network server operating environment, small to medium NetWare users of DB2/2 will now be able to utilize DB2/2's server-based querying from a single server, rather than requiring a separate server running OS/2.

CD-ROM: curious strategy

Eighteen software vendors have agreed to participate in a new IBM electronic marketing venture that will offer software applications on CD-ROM. Yet once again, Big Blue seems confused about its own priorities: it will offer a version containing Windows software

months before an OS/2 version ships.

Each disk will contain in abbreviated or partially encrypted form up to 100 programs that a user can preview before deciding to buy. Upon paying for a particular product, the buyer will receive a code that will unlock the full software package along with complete documentation.

Participants will include Lotus, Microsoft, WordPerfect, Adobe Systems, and T/Maker Co. The disks will initially be distributed through corporate resellers by mid-year, with retail distribution to follow by year's end. ♦

OS/2 Inter-Process Communication: Queues

BY CAREY GREGORY

When I look at the OS/2 applications that have appeared on the market recently, I'm struck by two things. The first is how rapidly the sophistication level of PM programming has increased. It seems that the PM programmers of the world are rapidly overtaking their Windows counterparts in the creativity and spit-and-polish departments, and I'm surprised at how quickly the intimate details of PM and the Workplace Shell have been mastered.

The second thing that strikes me is the number of applications with polished, beautifully designed front-ends that also suffer glaringly obvious internal problems, particularly in the multitasking department. Problems crop up even within OS/2's services. Recently, while perusing the OS/2 Toolkit on-line documentation using the OS/2 Information Presentation Facility (IPF), I made the mistake of selecting the **All Sections** button in the Print dialog box. Despite a message box that warned this could take a long time, I elected to continue; after all, this was OS/2 and I could just switch to something else while the print job finished.

Or so I thought. I pressed Ctrl-Esc to bring up the task list, but all that remained was the clock icon shown by the help facility. I pressed Ctrl-Esc again. Still nothing but a clock icon. Clicking on the desktop had no effect.

And then it appeared—the dreaded “This application is not responding” dialog box presented by the system when a PM program quits servicing its message queue. With a sinking level of confidence, I told the system to end the program. No such luck. The IPF was busy printing and couldn't be bothered to do what every article, book, and manual ever written on the subject of PM programming said it must do: process the message queue in a timely fashion. Eventually, I rebooted the system,

LISTING 1

```
#define INCL_DOS
#include <os2.h>
#include <stdio.h>

void main(void)
{
    APIRET      rc;
    HQUEUE      hQueue;
    REQUESTDATA RequestData;
    unsigned long uLength;
    void        *pData;
    unsigned char ucPriority,
                Done;

    /* create a FIFO queue */

    if ((rc = DosCreateQueue(&hQueue,
                            QUE_FIFO, "\\queues\\myqueue")))
    {
        printf("DosCreateQueue failed, rc = %u\n", rc);
        return;
    }

    /* read the queue until termination request is received
    */

    Done = FALSE;
    while (!Done &&
           !(rc = DosReadQueue(hQueue,
                              &RequestData,
                              &uLength,
                              &pData,
                              0,
                              DCWW_WAIT,
```



```

        &ucPriority,
        (HEV)NULL)))
{
    printf("Client PID=%u, Request Code=%u,
           Length=%u, Priority=%u\n",
           RequestData.pid, RequestData.ulData,
           uLength, (unsigned)ucPriority);

    /* request code 1 means print a string, code 0 means
       terminate */

    switch (RequestData.ulData)
    {
        case 0:
            Done = TRUE;
            break;

        case 1:
            printf("Data=%s\n", pData);
            DosFreeMem(pData);
            break;
    }
}

DosCloseQueue(hQueue);
return;
}

```

LISTING 2

```

#define INCL_DOS
#include <os2.h>
#include <stdio.h>

void main(void)
{
    APIRET      rc;
    HQUEUE      hQueue;
    REQUESTDATA RequestData;
    unsigned long uLength;
    void        *pData;

```

grumbling that if I had wanted to wait for print jobs, I would be using Windows.

It's disheartening to learn that a major part of OS/2 itself has failed the test of a multithreaded environment—but the IPF is not alone. Several major OS/2 applications exhibit the unmistakable symptoms of race conditions and excessive dependency on the PM environment. Apparently, many PM programmers have yet to discover hundreds of useful functions outside of the PM subsystem. One such set of utilities, OS/2's inter-process communication (IPC) facilities, will help you exploit multiple threads of execution through functions that enhance your command and control over those threads.

Excluding the features found in PM itself such as DDE, OS/2's IPC mechanisms fall into four categories: queues, semaphores, shared memory, and pipes. For now, we'll limit our scope to queues and certain aspects of shared memory.

OS/2 Queues

If you've been writing PM applications, mastering OS/2's queue management API should be simple. Though the details are different, the principles of processing an OS/2 queue and processing a PM message queue are largely the same. An element is placed on the queue, the queue owner reads the queue, thereby removing the element, and then processes the element. Elements may be placed on the queue by other threads in the process that own the queue, by other processes, or both.

Unlike PM message queues, any type of process may use an OS/2 queue, whether PM or non-PM. Furthermore, no time limit restrictions (as under PM) apply. This last feature makes an OS/2 queue ideal for building message-driven systems with non-PM threads. In order to build robust multithreaded PM applications, I typically supply a non-PM worker thread that uses an OS/2 queue to receive requests from the PM thread. The non-PM thread then handles time-consuming tasks such as reading files, waiting on semaphores, and the like.

Since a non-PM thread can use the **WinPostMsg()**

function, the worker thread can pass results back to the PM thread by posting a user-defined message to the PM thread's window handle when it completes the request. In the case of the problem with OS/2's IPF, lengthy print requests could have been managed easily with this approach and I, for one, would be far less aggravated.

Creating Queues

To use a queue, a process first creates the queue using **DosCreateQueue()**, specifying a name and a type. Any thread in the system that knows the queue name may then open the queue using **DosOpenQueue()** and write to it, but only the process that created the queue can read from it. Queue names follow OS/2's general file naming conventions, but they must be prefixed with the path *\queues*. Subdirectories and file extension components are allowed in the name as in, for example, *\queues\myapp\mydata.queue*.

Only one instance of a given queue name may exist in the system, and attempting to create a queue with a name that already exists will result in an error. There are two significant ramifications to this. First, a queue name provides a very reliable method for detecting a running application because OS/2 destroys any queues created by the owner when it terminates. Second, to enable multiple simultaneous instances of your application, each instance must use a unique queue name. You can guarantee a unique name by simply converting the program's Process ID to ASCII and appending it to the queue name.

Queues come in three types: first-in/first-out (FIFO), last-in/first-out (LIFO), and priority. The queue type determines the order in which elements will be read from the queue using **DosReadQueue()** (although it's possible to read the queue in any order using the **DosPeekQueue()** function).

The behavior of the first two queue types should be self-evident from the names: elements are read from FIFO queues in the order that they were written, and elements are read from LIFO queues in the reverse order that they were written. When an element is written to a priority queue, the thread writing the element supplies a priority value between 0 and 15, with 15 being

```
unsigned char  ucPriority;
PID           pid;

/* open the queue */

if ((rc = DosOpenQueue(&pid, &hQueue,
                      "\\queues\\myqueue")))
{
    printf("DosCreateQueue failed, rc = %u\n", rc);
    return;
}

/* allocate giveable memory */

uLength = sizeof("Hello");
DosAllocSharedMem(&pData, NULL, uLength,
                  OBJ_GIVEABLE|PAG_WRITE|PAG_COMMIT);

strcpy(pData, "Hello");

/* give read access to the server, then free our use of
   the memory */

DosGiveSharedMem(pData, pid, PAG_READ);
DosFreeMem(pData);

/* write the string to the queue */

DosWriteQueue(hQueue, 1, uLength, pData, 0);

/* tell the server to terminate */

DosWriteQueue(hQueue, 0, 0, NULL, 0);

DosCloseQueue(hQueue);

return;
}
```


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the highest priority. The elements are then read from the queue in priority order.

To demonstrate the basics of queue management, I've created two very simple programs. Listing 1 shows a server application that creates a queue, reads elements from the queue, and acts on them. The server application understands two request codes: code 1 is a request to print a string passed in the queue, and code 0 is a request to terminate. Notice first of all that creating and reading an OS/2 queue is far simpler than doing the same with a PM message queue. The call to **DosCreateQueue()** requires the address of a queue handle, an options parameter, and the name of the queue to create. The options parameter specifies the type of queue to be created, and an option to have addresses that are placed in the queue by 16-bit applications automatically converted to 32-bit addresses. For this example, we'll use a FIFO queue and we won't bother with 16-bit addresses.

Reading and Writing Queues

When reading and writing a queue, it's important to realize exactly what is passed on to the queue. Queues store only pointers; the data is not copied, and the length parameter supplied by the client is merely passed along (OS/2 does nothing with this parameter). Of course, the pointer written to the queue must point to memory that the queue owner can access. If the only threads writing to the queue are all within the queue owner's process, any memory allocation method will work, including **malloc()**. However, if other processes are writing to the queue, the data must reside in some form of shared memory. The example client program that writes to the server program's queue appears in Listing 2. It uses "giveable" memory for passing buffers to the server program.

Generally the easiest method for allocating giveable memory is for the client to use **DosAllocSharedMem()**. After allocating the memory and before writing it to the queue, a call to **DosGiveSharedMem()** gives the memory to the queue owner. Following the call to **DosGiveSharedMem()**, OS/2 considers the memory block in use by both processes, permitting the process that allocated the memory to free it immediately. This approach works far better than using "gettable" memory because with gettable memory the process writing to the queue must know when the queue owner has read the element and made the call to **DosGetSharedMem()** before freeing the memory. There is no easy way to know when the queue owner has acquired the memory

(the seemingly obvious method, writing a pointer to the queue, does not increment the memory's use count).

In addition to a buffer pointer and length, the **DosReadQueue()** function supplies three additional pieces of information when it returns. The first two items are returned in the **REQUESTDATA** structure. On return, this structure will contain the PID of the process that wrote the element and a request code supplied by the client. Typically, an application uses the request code in the same way that PM uses a message id. Additionally, **DosReadQueue()** returns the element's priority as assigned by the client. This parameter would normally be of interest only with a priority queue, although the value is passed with FIFO and LIFO queues.

In Listing 1 you'll notice that the **DCWW_WAIT** flag is supplied to the **DosReadQueue()** call (the meaning of **DCWW** remains one of OS/2's hidden mysteries). When the queue is empty, this option blocks **DosReadQueue()** in the calling thread until an element is available. If, on the other hand, you don't want your thread to block on an empty queue, you can use the **DCWW_NOWAIT** option. However, to use the no-wait option, you must first create an event semaphore using **DosCreateEventSem()** and pass it to **DosReadQueue()** as the last parameter.

When a client process adds an element to the queue, OS/2 will then post the semaphore, which can then be queried with **DosQueryEventSem()** or waited on with **DosWaitEventSem()**. While there are situations where this method can be useful, it is generally easier to design your server thread to use the wait option. Be aware that once you have used the no-wait option and supplied an event semaphore to **DosReadQueue()** or **DosPeekQueue()**, the system saves the semaphore handle and you *must* use it on all subsequent calls. I find it unfortunate that the original API designers didn't instead supply a time-out value to the call. Unlike many blocking API calls which supply time-out parameters, the queue functions use a simple wait/don't wait approach.

Other Queue Functions

Once you understand the **DosReadQueue()** and **DosWriteQueue()** calls, you understand virtually all of the queue API. However, there are several additional functions that can be useful, and a brief summary of each is in order.

The **DosPeekQueue()** function, as its name implies, allows

CODE CACHE

the queue owner to read a queue element without removing it from the queue. It also allows it to read any element in the queue regardless of the queue ordering. By passing the element identifier returned by **DosPeekQueue()** to **DosReadQueue()**, a program may examine and remove any element in the queue without regard to the queue's natural order.

DosPurgeQueue() allows a queue owner (and only the queue owner) to delete all of the elements in a queue. The purge is a brute force approach in that it is total and unconditional. There is no allowance for deleting selected elements. You should be careful when using this function—if the queue contains pointers to dynamically allocated memory, your program will probably lose all reference to the memory blocks and consequently leak memory.

DosQueryQueue() returns a count of elements in the queue, and can be used by both the queue owner and clients that have gained access to the queue via the **DosOpenQueue()** function.

Summary

By mastering the details of OS/2's rich set of IPC mechanisms, it's possible, even simple, to build extremely robust multithreaded applications. Without them, it is difficult indeed. If designers are going to supply applications that fully exploit the superior capabilities of OS/2 and thereby propel OS/2 over the top of Windows in the desktop market, they literally have no choice. ♦

Carey Gregory is the president of Gateway Technologies Corporation of Canton, Connecticut, a consulting and software development firm specializing in OS/2 and NT. He can be reached via the Internet at careyg@bix.com or on CompuServe at 71034,2205.



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Circle #105



THE IS NOTEBOOK

Tips and techniques for the OS/2 Professional

Master of the Game

BY GORDON SCOTT AND GENE STEELE

Catch! Dodge! Shoot! Hide from the boss! It's April, and you may find that the stress of tax time is leading you to take out your frustrations on alien screen blips in the course of your, ahem, lunch hour. If you are one whose frustrations lead you to the depths of outer space or the mean streets in search of escape, here are some tips you can use to improve your desktop gaming.

On the other hand, if you're one of those strait-laced professionals who thinks that games have very little to do with your everyday work, think again. Games represent the most demanding type of application on the market today. The most exciting games will inevitably tax the limits of your system. Learning what it takes to run finicky game software on your system can help you learn enough about OS/2 to optimize environments for other resource-hungry applications.

Since most games run best in a dedicated DOS environment, they may require some tweaking to run acceptably under OS/2. The following tips about DOS settings will help you improve game performance, and improve those other DOS programs you use as well.

Silence your games before you start them.

- Click on the icon you use to start the game with the right mouse button. (If you don't already have a program icon for your game, you should create one.)
- From the pop-up menu that appears, open the settings notebook.
- Select the **Session** tab.
- Select the **DOS Settings** pushbutton

(you are now in the icon's DOS settings area).

- Select the **HW_NOSOUND** setting in the list box.
- Select the **ON** pushbutton to the right of the list box.
- Select the **Save** pushbutton.
- Close the settings notebook.

The clamor of a game adds to the distraction in a busy work environment. Of course, games are not alone—any application that beeps at you more than you'd like can be handled this way. OS/2's **HW_NOSOUND** setting for DOS programs intercepts messages sent to the PC's speaker so that the program runs silently from the moment it starts. You don't have to wait for the program to start and then go through its internal configuration settings to turn off the sound.

Let the DOS games use their own mouse pointer in a windowed session.

- Start the DOS session or game.
- Display the DOS window's system menu by selecting the system icon (the square in the upper left corner of the window.)
- Select **DOS settings** from the system menu to get a partial list of the DOS settings.
- Select the setting **MOUSE_EXCLUSIVE_ACCESS** in the settings list box.
- Select the **Save** pushbutton.

Some DOS programs use their own mouse pointer, or use the mouse movement, for special purposes. In either case, the OS/2 mouse pointer becomes a nuisance. With OS/2 you have the option to turn the standard block mouse pointer off when you are working with a mouse-aware program in a DOS window.

When you select **MOUSE_EXCLUSIVE_ACCESS**, the DOS application is the only one that can make use of the mouse (the OS/2 mouse pointer disappears). To make the OS/2 mouse pointer return, simply press the Alt key. To return to the DOS application's mouse pointer, click the OS/2 mouse pointer on the DOS window.

When you bring up the setting list through the active window's menu, note that the available options are a subset of those in the settings notebook. Some parameters (such as **MOUSE_EXCLUSIVE_ACCESS**) may be changed as needed. Others (such as maximum expanded or extended memory) must be set through the settings notebook before starting a DOS session. When you change a setting on the fly, it will remain in effect only until you exit the window. The settings notebook, on the other hand, remains in effect for the object (icon) across sessions.

Determine the best display mode for your graphical DOS game.

- After starting your game (or other graphics-based application) in a DOS window, select the system menu.
- Select the **Scaled image** menu item. (This should make the display larger.)
- If your application will not run in a window, select **Full screen** from the system menu (or press Alt+Home).

Some programs run only in a full-screen display. However, if your program *will* run properly in a window, the **Scaled image** menu item may come in handy. Some programs (particularly those that use low resolutions such as

320x200) appear in a very small window. To enlarge the window size, you can select **Scaled image** from the system menu. You will then see the program scaled to a more legible size.

There may be times when you want to use the full-screen display even if your program runs fine in a window. A set of tips on games wouldn't be complete without mentioning that the full-screen display gives you access to a quick-hide feature, since the display disappears from view when you press Ctrl+Esc to bring up the task list.

Control the game's background execution.

- Go to the icon's DOS settings area.
- Select the **DOS_BACKGROUND_-EXECUTION** setting.
- Select the **On** (or **Off**) pushbutton.

If you are running a program that makes you wait while the computer opponent figures out what to do (such as a chess game on the highest skill level setting), you want to be free to work on something else. By turning background execution **On** the computer can keep thinking about its move while you work on more productive tasks.

On the other hand, some programs should not run unattended. At worst, you may lose a ship (or data) while events continue unnoticed. At best, your foreground applications may slow down while the background application wastes processor time in continuous but unproductive display updates or input polling. You can prevent such behavior by turning background execution **Off**.

Provide more conventional memory for your program.

- Go to the icon's DOS settings area.
- Select the **DOS_HIGH** setting.
- Select the **On** radio button.

- If the program uses text-only mode select **VIDEO_MODE_RESTRICTION** and set it to **Mono**.
- If the program uses low-resolution CGA graphics, select **VIDEO_MODE_-RESTRICTION** and set it to **CGA**.

While OS/2's default settings provide more conventional memory than DOS itself, some programs will run faster if you further increase the available DOS memory. Loading DOS high will move portions of DOS out of conventional memory. If you can get by with text mode or low-resolution CGA graphics, your program will gain access to memory normally reserved for VGA graphics.

Load TSRs in high memory.

- Add this statement to your AUTOEXEC.BAT:
LOADHIGH tsrname
(for an example, look at your OS/2 AUTOEXEC.BAT file and notice the **LOADHIGH DOSKEY** statement).
- Go to the icon's DOS settings area.
- Select the **DOS_UMB** setting.
- Select the **On** radio button

Some memory resident (TSR) programs such as keyboard handlers, screen capture programs, or background communications programs to a mini or mainframe host, can take a significant bite out of available conventional memory. If you then try to load a large program within the window it may refuse to load for lack of memory. Moving the TSRs into high memory can resolve the problem.

Configure the high memory areas for a DOS session.

- Go to the icon's DOS settings area.
- Select the **DOS Settings** pushbutton.
- Select the **EMS_MEMORY_LIMIT** setting.

- Move the scroll bar to select the amount of *expanded* memory you need (up to 32mb).
- Select the **XMS_MEMORY_LIMIT** setting.
- Move the scroll bar to select the amount of *extended* memory you need (up to 16mb).
- Select the **DPMI_MEMORY_LIMIT** setting.
- Move the scroll bar to select the amount of DPMI memory you need (up to 512mb).

When a game, or any other large program, needs more memory than conventional memory provides it has two choices: swap data to disk and/or use memory above the 1mb address range. One of OS/2's more important strengths is its ability to tailor the environment for a DOS program, yet run different environments concurrently. Thus you can give 4mb DPMI (DOS Protected Mode Interface) to one program, while disabling DPMI memory for another.

Adjusting DOS memory settings can be a bit of a black art. But you can reduce the guesswork involved by checking the system requirements for your application. Does the system requirements say something like, "4mb EMS memory required?" If so, you must raise your **EMS_MEMORY_LIMIT** (the default is only 2mb of EMS memory). Likewise, specifications that mention "protected mode" should prompt you to adjust the DPMI settings.

Although some programs may use any of the three types, they require only one. If your program requires 4mb of EMS memory, you may disable DPMI and XMS memory by adjusting those settings to zero. Some programs simply won't run unless you enable the appropriate amount of one memory extension and disable the others. Don't worry about trying to make all these settings equal or less than your system's actual RAM amounts. Remember that OS/2 converts unused hard disk space into memory through the use of its

THE IS NOTEBOOK

swap file. This means that if you have only 8mb of RAM, you could still specify 16mb of XMS memory available for your DOS session (which is very useful for large spreadsheets).

Use a customized AUTOEXEC.BAT file for your DOS session

- Go to the icon's DOS settings area.
- Select the **DOS AUTOEXEC** setting from the list box.
- In the entry field on the right, specify the path and filename where the AUTOEXEC.BAT file will be found for this session. (This should be a copy of your OS/2 AUTOEXEC.BAT file with the changes you want added to the existing statements.)

- Add the names of TSR programs in the AUTOEXEC.BAT file you specified in the previous step.

Want to use a screen capture utility in one DOS session and a keystroke recorder in another? You won't have to load both TSRs into the same memory space (and won't need to reboot to switch between them) if you use custom AUTOEXEC.BAT files. You might also want a customized DOS prompt or a different PATH setup in each DOS session. Using the customized AUTOEXEC.BAT feature, you simply specify PATH or PROMPT statements to accomplish what you need. As you can probably imagine, there are many possible uses for this feature. For example, in the *OS/2 Professional* data processing office, PDOX.BAT sets a customized environment for local Paradox

applications and PDOXNET.BAT sets the environment for network access. ♦

Gordon Scott and Gene Steele collaborated to bring you this information. Gene is an avid TEAM OS/2 member who runs OS/2 demonstrations for user groups and trade show audiences (including the forthcoming Game Developers' conference in Santa Clara, California, April 24 - 26). Gordon writes on-line help and tutorials for OS/2 applications. Gordon and Gene work for different divisions of IBM located in San Jose, California.

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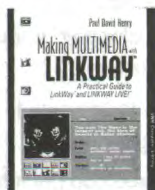
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Circle #39

Q & A

continued from page 27

brand you will know that an application is written where it will run in all of these environments. This will assure both ISVs and customers that applications written to this portable object model will run across a wide variety of OSs.

Will the primary products that we see from Taligent be development tools in the operating system itself?

There will be three major pieces. It's hard in a very short amount of time to give you the total feel here. Think of it as a Taligent application environment—that's an internal name for it (there will be a real name for this thing when we get done with it). But the Taligent application environment is made up of over a hundred frameworks, our desktop, and our UI. That set of technologies is available on multiple OSs. Think of these as large pads of frameworks. When applications use them you kind of rip off a copy, you subclass off it, and it inherits all of the characteristics of the framework. You build your applications that way—that's one product.

The second set of products are the development tools used to build the pieces that weld these frameworks together, or to build new customized frameworks. One of the great opportunities here is that your customers, corporate clients, will be writing vertical frameworks. We envision a world where there will be a set of insurance frameworks, a set of securities-oriented frameworks, and manufacturing frameworks, that will be added to our system to allow you to handle unique functions either at the customer level or even above that at the industry level.

Then the third piece is the OS, but we never ship that alone—it's shipped only in conjunction with the frameworks and our tools.

Is most of your income currently derived from cross-licensing between these various ventures?

Well, half of it is, though when we start shipping products our income will be derived from a fairly classical royalty structure where people who use and ship the frameworks—IBM, Apple, HP, and others—will pay a royalty.

When do you think we'll first see Taligent label technology on the marketplace?

Well, with a little luck and continued focus by our team we intend, some time in the first part of the year, to ship our first developers kit. It will be a portable application environment that IBM intends to integrate into an OS/2 developers kit and an AIX developers kit. HP has similar plans and Apple follows a little later with plans of their own.

The first part of this year?

continued on page 75

OS/2 2.1 Workplace Shell Programming

by Stefano Maruzzi, Random House Electronic Publishing, 720 pages, \$44

REVIEWED BY JAMES T. NORMAN

If you're a developer looking for a way to become skilled in a niche where you will be in demand for some years in to the future, here's the software for you.

That's what I said, the *software*. The disk that accompanies this book is the key to its success. It doesn't hurt that the software also comes with a superb 720-page book that takes the reader and developer on a journey into the world of developing objects for the Workplace Shell.

After the introduction, Chapter Two begins with the C language and continues into the development of a basic PM application that not only works but serves as a base for later examples. If you're not all that familiar with C and C++, the text, examples, and exercises will put you on a sound footing.

As the chapters progress, the short clips of programming will add to your knowledge base, demonstrating good programming style and useful techniques for presenting information for the user on a screen. There are many discussions of "why does it work that way," all explained clearly and very well.

By Chapter Ten, multitasking, coding for performance, and most of the window functions have been explained, and the author moves on to the development of a DLL. This clear explanation alone is worth the price of the book. Maruzzi takes the mystery out of creation of a DLL and explains when to use one.

The author's technique of explaining with a small illustration, followed by an integration of the example into the larger picture, makes the book very easy to follow. If anything, there may be a few too many words in some places. The liberal use of charts, code segments, and screen shots significantly help the reader to under-

stand the topic. The code segments have been well thought out.

The disk is a gem, coupling itself directly with IBM's CSet++ and allowing all generation to take place correctly. All code has also been tested with the Borland C++ compiler.

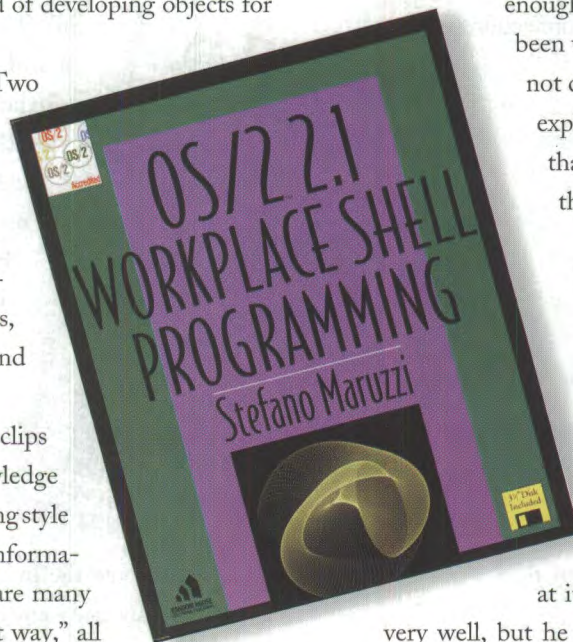
Developers proficient in programming the Workplace Shell are valuable: they're promotable. Unfortunately, there isn't enough help out there. The Workplace Shell has been written about by several authors who did not do it justice. Maruzzi, on the other hand, explains and teaches with useful examples that can be embedded in your applications the day you learn how to do them.

From the back cover I find that Stefano Maruzzi is a leading authority on OS/2 2.1 and is the author of several best-selling computer books in Italian. From the acknowledgments, I discover that this is his first book in English. I don't know where he got his in-depth understanding of the topic and how to teach it, but he is excellent

at it. With the help of his editors he writes very well, but he really excels when he is explaining the Workplace Shell and how to program it.

If you were told that teaching software was available, with a manual, for under \$50, you would probably order it immediately. If C++ and Workplace Shell are in your career path, this book/software package should be in your hands. You can learn by reading this book, but you can learn a real skill by doing the exercises as they are explained. ♦

James T. Norman is president of Norcom Consulting, Inc. which specializes in client/server consulting. He can be reached via MCI Mail at 107-6464.



The PC Internet Tour Guide

by Michael Fraase, Ventana Press, 284 pages, \$24.95

REVIEWED BY DANA BLANKENHORN AND TOMMY BASS

After *The Whole Internet User's Guide*, by Ed Krol for O'Reilly & Associates, became a best seller last year, every publisher with a printing press jumped on the bandwagon. Some of the results are uniformly good, others more uneven.

The PC Internet Tour Guide is closer to the latter. If you have dedicated access—say, a digital line running at 56kbps or faster—you can get a lot out of this book. If you can get a Serial Line Internet Protocol or Point to Point Protocol connection (commonly called “SLIP/PPP”), which lets a fast modem work under the Internet's TCP/IP protocol, you can get something from this book. If you're just dialing in, though, while there's still guidance available, some of it quite good, you're liable to find it a bit general for a guidebook.

A good first book on the Internet must answer questions like these:

- How do I get connected?
- How do I upload/download files through the Internet?
- How do I send/receive e-mail through the Internet?
- How do I find my Internet address?
- How do I find others' addresses?
- What's FTP? What's GOPHER? How are they used?

This book is very good at asking and answering many of these key questions. In fact, Fraase offers the best step-by-step instructions we've seen for doing ftps (file transfer protocols) and using GOPHER, a front end to many popular Internet databases.

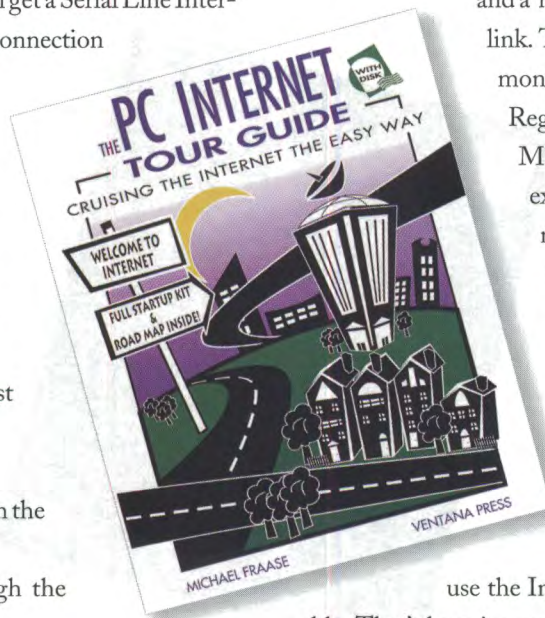
The Internet was created mainly for Unix machines, not PCs, and long before point-and-click interfaces like OS/2. Like many other books today, *The PC Internet Tour Guide* includes software aimed at making life easier for today's reader. For example, it offers a program called MINUET, described as a “friendly front

end” for the Internet. Unfortunately, MINUET runs under DOS and requires a direct Internet connection. There's also a connecting utility called UMSLIP, but to use it you need a SLIP/PPP connection. If you're just dialing in on a non SLIP/PPP access, the free software will not help you.

Fraase offers suggestions on where to go for an Internet connection. He explains how you'll pay a sign-on fee and a monthly fee plus long distance fees for the link. There's a form in the back for a free one-month trial membership in the Minnesota Regional Network, or MRNet. We called MRNet and talked to Sasha Noud, who explained that they're offering a SLIP connection, and that an account takes two to three weeks to set up. Your free month begins with your first log-in, does not include long distance charges to Minnesota, and is capped at 25 free hours of connect time.

The book might have noted for novice Internet users that there is a more permanent way available to use the Internet and to get a feel for what's available. That's by using any of the many Freenet nodes around the U.S. You pay only long distance charges. You can log in as a guest to get your own password and Freenet account. You won't have full Internet privileges, but you can get e-mail and start exploring.

The best way to learn is by doing, not by reading. If you feel the need for a text, this one will serve you well if you already have some key advanced tools available to you. Otherwise, get Krol's authoritative book. ♦



Dana Blankenhorn is telecommunications editor for the Newsbytes News Network, an online news wire covering technology. Tommy Bass is a long-time Newsbytes reviewer. Write Dana at 76200.3025@compuserve.com and Tommy at tbass@freenet.tlb.fl.us.

Q & A

continued from page 72

Yes, hopefully in the next three or four months. Then we'll follow that up with a beta release which will be a fully functional release. That will also be this year. Then, as soon as we get through the beta cycle, which could be short or long depending on what the market feedback is, we'd have our first commercial release out. So clearly in the early '95 time frame we'd expect to be in the market with a commercial offering across multiple investors just as customers start thinking about their object alternatives from other vendors. That's very consistent with what I said when we first set up this company.

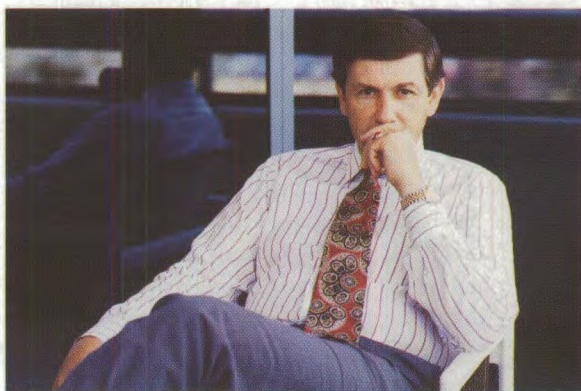
Are there pieces of Taligent technology that people are using already without being aware of it in either the Apple or the OS/2 environments?

Yes. OS/2 primarily started shipping pieces of it. I don't know if they're not aware of it. I'm not sure exactly how IBM positioned it, but the middle of last year in their SOM Toolkit we shipped something we call our foundation classes. These are all the base classes for linking services—IBM shipped the first set of these in the fourth quarter of last year to a small set of corporate customers. IBM shipped a major set of our frameworks for 2- and 3-D graphics environments as part of a toolkit. IBM has been very aggressive in getting OS/2 and its developers to begin using some of the earlier technologies as precursor technologies to the offerings I've described.

If someone were looking to develop with Taligent as the ultimate target, what types of things should they be looking at today? Mostly concentrating on SOM and DSOM type applications?

Taligent's first programming environment will be C++. One of the first things we tell customers to do is to think about reengineering their applications and their future applications along object architecture as opposed to procedural architecture. That's the biggest issue here and the thing that will take the most change.

The first step is to pick an application, pick an important one, one that is hard to do because this technology really shines in applications that typically are critical and difficult to implement. Then begin the design work, and this has to do with object design. A whole series of courses and books on object design are available in the industry. Select a language, we recommend C++ to start with—that's where we're going to be and much of the industry is headed—then begin implementing a pilot in C++.



About the time they do that we'll actually have our first developer kits out. We'll be able to think about how they would fit object design into the Taligent model, which would give them the ability to write a set of applications that are truly portable across multiple environments. So that's the sequence.

If you're an OS/2 developer we encourage you to stay with OS/2 because IBM will be shipping this

class technology integrated into OS/2. IBM will make the transition much less painful and abrupt because you will be able to continue to run your current investments and then begin writing these new class of applications in the object paradigm and still run them on your existing OS/2 environment.

This all sounds very productive from a development standpoint. How will the performance be and what kinds of costs might users pay?

Well, obviously we are very mindful of that. Object technology has had a problem in the past because it hasn't really been viewed as a higher performance environment. The team has been working at this for about four years, if you go back to the Pink project, so they've really done a lot in the base object services to keep the focus on performance. Secondly, there will be an incremental footprint size. We're working on that now because we don't really run on top of everything. Rather we bolt, if you will, Taligent's object model down on top of OS/2's object services. We did map them into the requirements we need. We actually have these up and running today and we're showing them to ISVs and corporate accounts today. We have written a suite of applications that we could demonstrate that show the promise of this new model. We've begun to compile metrics on how quickly you can write the applications. We demonstrate major pieces of the system running on OS/2, IBM's PowerPC, RS/6000, AIX, etc.

You'll see a lot more activity from Taligent over the next several months as we begin the rollout of the first developers kit. We are working very closely with IBM, the Boca Raton OS/2 group as well as the Austin group, on making sure these strategies work together. We're doing the same obviously with HP; HP is now working to converge their plans with Taligent. We'd expect—not at the first release but at the second and third release, as we move forward to the commercial release—that HP will be integrated. We're working with Apple primarily in the enterprise space today.

Thank you, Mr. Guglielmi. ♦

INPUT

continued from page 17

tion, as the product and documentation were not yet available. (EZRAID began shipping as the April issue went to press.) Specific features of EZRAID will be addressed in a future review.

It is neither hardware nor software alone that leads to a "low-tech" solution. If the user simply adds a disk or two to an existing system, without regard for whether that disk is easily removable (or a spare available) in the event of a failure, the system could remain crippled for quite some time while a replacement is secured and the system can be brought down for repairs.]

A disappointed Stacker

After reading your review of Stacker for OS/2 [DOT EXE, December], I felt it important to relate my recent experience. I am an OS/2 developer responsible for the creation of a rather large workstation application (500,000 lines of C). My work requires me to keep several different sets of development tools on my IBM ThinkPad 720c. Since IBM has not made available anything larger than 170mb hard disks, I decided in December 1993 to give Stacker for OS/2 a try.

After an involved amount of tweaking I was able to get Stacker to run as well as possible, which was still about 40 percent slower than without compression. The use of Stacker has made running concurrent applications almost impossibly slow. I was willing to live with this performance degradation, but was not prepared for what followed. Over a two week period I experienced several system traps (disk i/o related). Finally one of these traps ended up crosslinking dozens of files and destroying valuable data.

At that point I removed Stacker from my system and returned it to the store where I purchased it. The only bright spot in this adventure was that a Southern California CompUSA store took back the opened software package and gave me a full refund.

Kevin Bohacz

Los Angeles, California

A shareware answer

Ken Mackin's review of the Gamma-Tech utilities [DOT EXE, December] stated that there are no utilities available that combine a file-find capability with selective delete, copy, etc.

Such a utility does exist. It is VGO10.ZIP, and it is available on Delphi, Greater Chicago Online, Prodigy, CompuServe, the OS/2 shareware BBS, and others.

VGO is a PM app that not only will find any and all occurrences of a file on your hard drive, it will also find them according to size, attribute, date, name, etc. You can search by virtually any criteria. After you find what you need, you may then choose virtually any command to use with those files. You can use any of the standard file commands on found files. Better yet, you may search for a file and have it loaded into your editor or word processor.

VGO has a companion called GO.CMD that does everything VGO does, but it is a text only app.

Chris Alumbaugh

Rockford, Illinois

In 4 megs?

In his Publisher's Memo [January], Edwin Black said OS/2 will not run in 4mb of RAM. Well, I have run OS/2 for Windows in 4mb on a 386DX40 for a month. It runs very slowly because of the disk swapping, but I can run a Telix download, scan mail in RoseReader, and do a virus scan all at the same time! Of course, I upgraded to 8mb to increase my performance, but it did indeed work.

Mike Young

Toronto, Ontario, Canada

When I first got my Thinkpad 750, they did not ship the extra memory I had ordered with it. I loaded and ran OS/2 2.1 on 4mb RAM for nearly two weeks. It performed without a hitch although it was quite slow.

I have since upgraded to 20mb RAM on my TP750. Certainly no problems,

but it does take forever to hibernate and wake up.

Keep up the good work. Thanks.

Bill Clerico

Lincroft, New Jersey

I beg your pardon!

I took umbrage with your review of the high tech joke book [Bookstax, February]. What do you mean, "There's not much else out there?"

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Chris Miksanek

Elmhurst, Illinois

Too many words?

I have to congratulate you on a major feat. Yours is the only computer magazine other than *Infoworld* that has survived publishing one of my letters. (I have the sad distinction of publication in the last issue of three other magazines.) Alas, if the January issue is a typical example of the product you're planning for the future, I'm afraid that your drive to pull in more paid subscribers will destroy your publication.

Here's my problem: you're too wordy. I don't know if I'm an "OS/2 Professional," but I'm definitely in corporate America. (I work for GM Hughes

INPUT

Electronics, a subsidiary of General Motors.) I'm a graduate of Windows 3.x and a personal user of OS/2 (which is officially approved for use at Hughes, unlike Windows NT). I also work with my wife's computer software development/hardware consulting firm on the side. I need information on how to most apply OS/2 to my needs and to my customers' needs. I need reviews of software. I need operating tips. I don't need to be convinced of the value of OS/2.

I applauded when you moved away from Windows-bashing. I can only groan at what I perceive to be a move back in that direction. OS/2 2.1 is useful today, and that's all of the evidence that I need to believe that IBM is headed (albeit slowly) in the right direction. If your goal is to pull in the 90+ percent OS/2 users that work in the business world, why don't you focus on their needs? Make our jobs easier, please.

Edward Galarza
Brooklyn, New York

Journalistic confusion

I'm furious that *OS/2 Professional* gave Peter Coffee recognition for *PC Tech Journal's* 1987 coverage of OS/2.

Peter began writing for *PC Tech Journal* in the January 1988 issue, well after all our 1987 coverage of OS/2. Our major coverage was in the November '87 issue, which featured articles by Mirecki, Heller, Armbrust/ Forgeron, Schmidt, and Armbrust again. Also in that issue, my column "New Directions" was dedicated to the topic of OS/2 and Editor Julie Anderson's editorial discussed the matter.

All the feature articles were prepared either by *PCTJ* staff or by one of our regular contributors under assignment. It was the staffers of *PCTJ* who determined which articles would run and who would write them. Coffee was not a factor at that time and was never a factor in determining what *PCTJ* would publish.

In all fairness, your award should have gone to a senior executive at Ziff-

Davis, who could have accepted on behalf of that crack editorial team.

Will Fastle
Via MCI Mail

[Brad Kliewer replies: The award was for 1993 coverage, not 1987 coverage. The reference to 1987 was for historical purposes.]

Letters to IBM

I'd like to toss in my two cents on OS/2 (both 2.0 and 2.1). I purchased a PS1 in 1992 as my first new computer in almost a decade. It replaced my trusty old PCjr with 256K (don't laugh, it made a great electric typewriter). I had used various 286s and 386s operating both with DOS and Windows, along with Apple Macs, at work, but never had a need for anything more than a PC Jr. at home, until recently.

The PS/1 came installed with OS/2 2.0, and I never had any problems with it. It wasn't until after I had the system that I began to hear the OS/2 horror stories. I can honestly say, however, that I never had any problems with OS/2 2.0. I don't know if the fact that it came preinstalled made a difference or not.

I was pleased with the system but when the 2.1 version came out I thought I might as well protect myself. I purchased it this year, installed it myself, all umpteen disks, and it has worked fine. The multitasking works great, any software I want will install and run well, and I haven't had any problems.

Maybe I'm just lucky, but I think OS/2 is a better operating system than anything else out there.

Brad Smith
Sacramento, California

I recently made the move to OS/2, OS/2 2.1 for Windows to be exact. When I first got the operating system I only had 4mb of RAM. I knew that wasn't enough to really run the system. The OS peaked my interest enough to purchase another 4mb of memory. I must admit that when I first installed

the OS I ran into a few problems, but most of them happened because I didn't really follow the directions. Actually, I have had the same problems with Windows and DOS. If you don't follow the directions any installation doesn't go well.

Once I got the memory I decided to go OS/2 all the way. I partitioned my hard drive with a 1mb boot manager, 20mb DOS/Windows, and the rest for OS/2 HPFS. I loaded my DOS and Windows back onto the 20mb partition (as required for the Special Edition of OS/2). I then installed OS/2 and re-installed most of the software.

I am extremely pleased with the performance and feel of OS/2. I find it interesting that people are dropping OS/2 because of installation as well as other problems. I am now able to do things with my computer that just weren't possible with Windows 3.1, such as downloading in the background at 1650 cps and still being able to really use the system. I feel that OS/2 has completely changed the way I am going to use my computer in the future. I have already started looking toward replacing my existing Windows software with OS/2 versions.

One thing I must say about Microsoft—the introduction of MS Word 6.0 makes it easy to justify purchasing Ami Pro for OS/2 since the competitive upgrade price is the same as if I were to upgrade to Word 6.

Duane Ellison
Lancaster, California ♦

The January Input section included a letter from Robert Pound sent to the magazine that he did not intend for publication and that was reformatted to fit in the column. Input apologizes for the inclusion.



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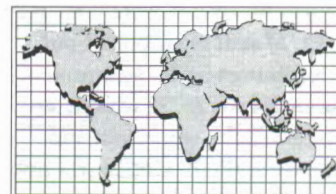
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development. The latest in technologies and new products will be on display.

The full conference costs \$895. Packages are available that will allow three or more staffers from the same company to attend the Expo at a \$100 discount each. One-, two-, three-day, and exhibit floor-only admission tickets also are available. Contact: IBM Conference Center, (800) 872-7109.

MAY 2-6

NETWORLD+INTEROP '94

Las Vegas, NV

This year's combined NetWorld+Interop event will kick off with a series of two-day in-depth tutorials. The General Conference, which runs concurrently with the NetWorld+Interop Exhibition, consists of more than 70 sessions on issues and technologies that will shape the future of networking. Keynote addresses will be delivered by Ray Noorda, president & CEO of Novell Inc., David C. Mahoney, chairman and CEO of Banyan Systems Inc., John Morgridge, president and CEO of Cisco Systems Inc., and Larry Ellison, CEO of Oracle Systems.

Package rates range from \$1,280 to \$1,695. The ExhibitsPlus pass costs \$50 and includes admission to the keynote speeches, Intro to Networking, Special Sessions, and the Product Presentation Theaters. Contact: Interop, (800) 488-2883.

MAY 8-12

INTERNATIONAL DB2 USERS GROUP CONFERENCE

San Diego, CA

The San Diego Marriott and Hyatt Regency will be the sites for the 6th Annual IDUG Conference, which will include all-day educational seminars, panel sessions, Special Interest Group sessions, and the Speakers Corner. Among the seminar presenters will be Jim Kinsley of The Forethought Group, Steven Mills, general manager of IBM's Software Solutions Division, Larry DeBoever, founder of DeBoever Architectures, and Stu Hoyt, an independent consultant, who will deliver an address entitled "DB2 Performance Tuning Suggestions." The cost of the conference is \$1,195. Multiple attendee discounts are available. Contact: IDUG, (312) 644-6610.

MAY 23-26

COMDEX SPRING/ WINDOWS WORLD '94

Atlanta, GA

More than 90,000 computer and communications professionals are expected at the combined Spring Comdex/WINDOWS WORLD '94 Conference at the Georgia World Conference Center. In addition to the exhibit floor, five Conference programs will be offered, and attendees will also have the opportunity to experience a live, hands-on, multivendor

network linking Windows, OS/2, Macintosh, UNIX, and others at APPNET.

Bill Gates, president & CEO of Microsoft, and Christopher Galvin, president and COO of Motorola, will deliver the keynote addresses.

An exhibits pass is \$75 for all four days. Packages are available for the program and conference sessions, starting at \$325 for one day and \$525 for all four days. Contact: The Interface Group, (617) 449-6600.

MAY 23-27

DB/EXPO '94

San Francisco, CA

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Nine conferences and five in-depth one-day technical seminars will be offered. The keynote program will feature Philippe Kahn of Borland International, Andrew S. Grove of Intel Corporation, Larry Ellison of Oracle Corporation, Umang Gupta of Gupta Corporation, and Jerre Stead of NCR Corporation. The daily conferences are \$495 per day and the in-depth seminars are \$495. Early registration discounts and complimentary exhibit passes are available until April 22. Contact: Blenheim NDN, Inc. (800) 2DB-EXPO. ♦

On-line: The Inside Line

BY JERRY POURNELLE

One of Larry Niven's laws states there is no cause so noble that it won't attract fuggheads. A corollary is that at a science fiction convention, the general press will interview the only fugghead in sight. Another old saying is that I can defend myself from my enemies, but only God can save me from my friends.

Case in point: a reader has taken me to task for my February column in which I pointed out that neither the official OS/2 manuals nor Dvorak's book explains CHKDSK. If I had bothered to look at the on-line documents, he says rather archly, I would have found that it's all there.

I replied that despite on-line documents, there's a place for books with indices. If your computer isn't running, it's difficult to use the on-line documents to find out what's wrong. Moreover, it's a bit hard to take on-line documents into the bathroom to read over what to do about the latest problems. Having said all that, I felt a bit chagrined, because I hadn't looked at the on-line documents. As it happened I soon needed to.

OS/2 does communications extremely well. I use it with Procomm 2 in a DOS window. I also have Aladdin, a DOS front end for the GE GENIE bulletin board system. That's in another window, and automatically goes out and gets all my GENIE messages, e-mail, and such like.

Then one day it stopped working. Actually, it simply crashed. Worse: although I had set the Aladdin session not to close the window on exit from the program, it closed anyway, before I could see what was crashing it.

So, first thing, go back to the Aladdin window settings, see it was set not to close on exit, set it to close on exit, save, open settings again, set it to stay open on exit, save, invoke Aladdin, crash it—and this time the closed Aladdin window stayed around to tell me my disk was full.

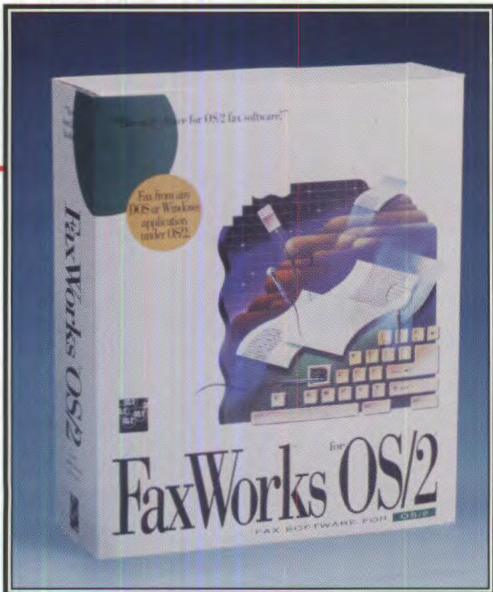
I deleted some files, but CHKDSK told me I had lost chains, and should use the /f option. Only of course the /f option doesn't work. Try to find out how to make it work. On-line documents, right? Go to desktop. Right button. Help. Help Index. No CHKDSK. Help services. Search. CHKDSK. Nothing. Aha! I'm only searching the index. Try searching everywhere. Dark line that says "Help for Check Disk." Hurrah. Double-click on that. Some general stuff of no value, but down in the stream of useless words is the word CHKDSK in red. Double-click on that. Finally, some help.

The help file tells me that CHKDSK can't write corrections to a disk that has open files. It is not immediately obvious that this means you cannot possibly fix the hard disk if you booted from it, but of course that's what it means. Now what?

I got out of the mess by reading through the documents—not on-line, just good old paper—that came with Stacker for OS/2. Basically the solution is to boot the PS/2 with a DOS floppy, and use DOS CHKDSK to fix the hard disk, then use Stacker's defrag program. All of that worked.

I know, I know. OS/2 is wonderful, and there's a perfectly good reason why you can't fix detached chains without going to floppies even if DOS can do it. But for corn's sake why do I have to go all around Red Robin's barn to find out that's what I have to do? Come on, fellows, we're not all gurus! ♦





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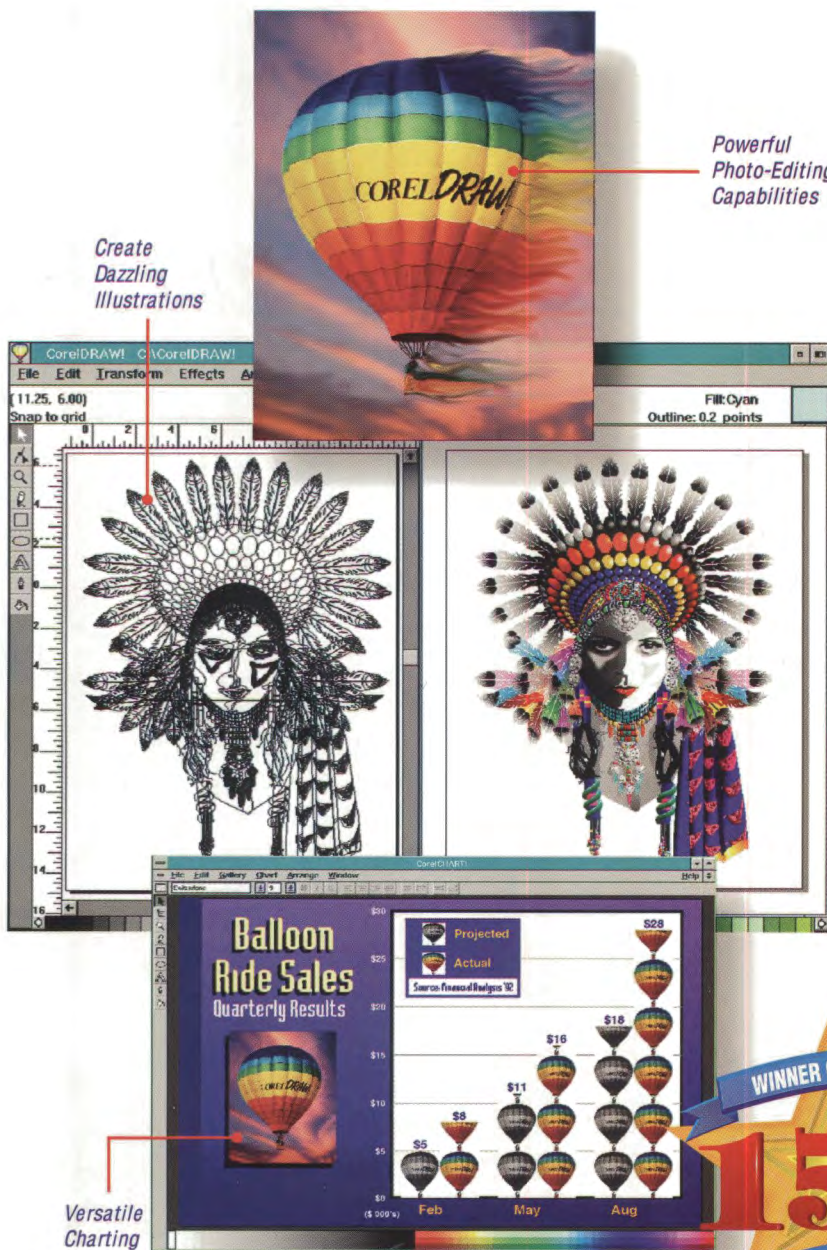
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